Bliss Revisited:
Preliminary Accounts of the Bliss Islands Archaeology Project Phase II

by

David W. Black, ed.

24E

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1988

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Contents

Contents i
List of Tables iii
Lists of Figures iv
List of Plates v
List of Contributors vi
Preface vii
Abstract viii
Acknowledgements ix
PART I Phase I Revisited 1
CHAPTER 1 Bliss Islands Archaeology Project, Phase 1 by D.W. Black 3
CHAPTER 2 Intensive Shellfishing in the Quoddy Region A Preliminary Analysis of the Weir Site by D.W. Black 10
Description of the Bliss Islands 10
Archaeological Research on the Bliss Islands 13
The Weir Site 13
Artifact Assemblage 14
Shellfish Remains 16
Vertebrate Remains 16
Prehistoric Subsistence Activity at the Weir Site 17
Summary and Conclusions 20
PART II Phase II Introduction 39
CHAPTER 3 Bliss Islands Archaeology Project, Phase II, Summary by H.L. Hale, R.S. Finley, and D.W. Black 41
CHAPTER 4 Bliss Islands A Preliminary Chronology of Prehistoric and Historic Occupations by David W. Black 70
CHAPTER 5 The Slate Ulu from Whitehorse Island by C.J. Turnbull and D.W. Black 73
PART III Site Reports 81
CHAPTER 6 The Ledge Site Archaeology without Artifacts by D.W. Black 83
1983 Research 83
1986 Research 84
Discussion and Conclusions 84
CHAPTER 7 The Lighthouse Cove Site by D.W. Black 100
Introduction 100
Stratification 100
Matrix Samples and Invertebrate Faunal Remains 100
Vertebrate Faunal Remains 101
Prehistoric Lithics 101
Prehistoric Ceramics 101
Historic Artifacts 101
Discussion 102
CHAPTER 8 The Pintlowes Cove Site by D.W. Black 116
Introduction 116
1986 Field work 116
Interpretation of Site Stratification 116
Cultural material 117
Conclusions 117

CHAPTER 9 The White Water Site by D.W. Black....128
Introduction....128
1986 field work....128
Interpretations and Conclusions....129
PART IV Specialed Studies....135
CHAPTER 10 Organic Artifacts from the Bliss Islands by K. Robins and D.W. Black....137
Introduction....137
Modified rodent incisors....137
Worked Antler....139
Other Modified Teeth....140
Awls....140
Needles....140
Barbed artifacts....140
Projectile points....141
Bone Tips....141
Bone working Debitage....141
Shell Artifacts....141
Artifact distributions....142
PART V Concluding Statements....163
CHAPTER 11 Accomplishments and Work in Progress by D.W. Black....165
CHAPTER 12 Summary, Conclusions, and Recommendations by D.W. Black....170
APPENDIX Keys to Figures....175
REFERENCES CITED....185

List of Tables

TABLE 2-1 Size data for the Weir site archaeological sample. 34
TABLE 2-2 Quantitative analysis of the Weir site faunal sample. 35
TABLE 2-3 Niche width measurements comparison between the Weir site and the Wheeler's site..... 36
TABLE 2-4 Niche widths and variability in shellfishing at the Weir site. 37
TABLE 10-1 Provenience of organic artifacts from the Bliss Islands by site. 143
TABLE 10-2 Distribution of types of rodent incisor modification by site..... 144
TABLE 11-1 Prehistoric artifacts from the Phase II field work..... 167
TABLE 11-2 Vertebrate faunal remains and matrix samples from the Phase II field work..... 168
TABLE 11-3 Historic artifacts from the Phase II field work..... 169

Lists of Figures

FIGURE 1-1 Map of the Quoddy region 6
FIGURE 1-2 The Bliss Islands showing the locations of the archaeological sites.....8
FIGURE 2-1 Map of the Quoddy region showing the location of the Bliss Islands.....24
FIGURE 2-2 Map of the Bliss Islands 26
FIGURE 2-3 Map of the Weir site (BgDq6). 28
FIGURE 2-4 Description of the stratification intersected by excavation unit 1. 30
FIGURE 2-5 Description of the stratification intersected by excavation unit 4. 32
FIGURE 3-1 Transects surveyed and shovel-tested during Phase II. 46
FIGURE 3-2 Map of the Camp site (BgDq4). 48
FIGURE 3-3 Plan of the excavation at the Camp site. 50
FIGURE 3-4 Map of the Weir site (BgDq6).. 52
FIGURE 3-5 Plan of the excavation at the Weir site.....54
FIGURE 3-6 Sample layer excavation form. 56
FIGURE 3-7 Sample unit/layer plan.....58
FIGURE 3-8 Sample matrix description form. 60
FIGURE 3-9 Map of the Northeast Point site (BgDq7). 62
FIGURE 6-1 Map of the Ledge site (BgDq5) showing the areas tested. The inset map shows the location of the site on the islands.....86
FIGURE 6-2 Stratification of the Ledge site, area A.....88
FIGURE 6-3 Matrix analysis of the Ledge site, area A shell deposit. 90
FIGURE 6-4 Stratification of the Ledge site, area B. 92
FIGURE 6-5 Matrix analysis of the Ledge site, area B shell deposit. 94
FIGURE 7-1 Map of the Lighthouse Cove site showing the area of the shell midden and the locations of the test units. The inset map shows the location of the site on the islands. 106
FIGURE 7-2 Stratification of the Lighthouse Cove site, unit 2.....108
FIGURE 7-3 Matrix analysis of the Lighthouse Cove site, unit 2, layer 2.....110
FIGURE 7-4 Matrix analysis of the Lighthouse Cove site, unit 2, layer 1.....112
FIGURE 7-5 Prehistoric artifacts from the Lighthouse Cove site 114
FIGURE 8-1 Map of the Pintlowes Cove site. 120
FIGURE 8-2 Stratification of the Pintlowes Cove site, unit 2. 122
FIGURE 8-3 Matrix analysis of the Pintlowes Cove site, unit 2, layer 3. 124
FIGURE 8-4 Prehistoric artifacts from the Pintlowes Cove site 126
FIGURE 9-1 Map of the White Water site (BgDr62).....130
FIGURE 10-1 Types of rodent incisor modification.....146
FIGURE 10-2 Diagrams of bone artifacts 148
FIGURE 10-3 Horizontal distribution of organic artifacts in the Camp site. 150
FIGURE 10-4 Horizontal distribution of organic artifacts in the Weir site.....152
FIGURE 10-5 Stratigraphic distribution of organic artifacts in the Weir site. 154

List of Plates

The "camp" at the Camp site, Bliss Islands.....FRONTIS PIECE
PLATE 3-1 The schooner Bowdoin in Fishermans Cove.....64
PLATE 3-2 Excavation in progress at the Camp site.....66
PLATE 3-3 Excavation in progress at the Weir site.....68
PLATE 5-1 Archaeologist Louise Hale holds the Indian stone knife found by a scallop dragger off White Horse Island, Charlotte County, N.B. The knife was made by an early Indian culture about 6000 years ago. 76
PLATE 5-2 A close-up of the slate knife from White Horse Island. The artifact was made from a piece of banded slate by grinding and polishing, and has a well defined grip opposite the sharpened edge.....78
PLATE 6-1 Photograph of the Ledge site (BgDq5) taken from the beach. 96
PLATE 6-2 Photograph of the midden profile, Ledge site, area B.....98
PLATE 7-1 Photograph of the Lighthouse Cove site (BgDr60). 104
PLATE 8-1 Photograph of the Pintlowes Cove site (BgDr61).....118
PLATE 10-1 Beaver incisor crooked knife in situ. 156
PLATE 10-2 Mammal bone projectile point.....158
PLATE 10-3 Scallop shell artifact in situ.....160

List of Contributors

David W. Black
R. Scott Finley
H. Louise Hale
Kevin Robins
Christopher J. Turnbull

Preface

I concluded the report on my initial archaeological field work on the Bliss Islands (Black 1985:59) with the hope that "some day, I [would] be able to refer to [that] report as: The Bliss Islands Archaeology Project (Phase I)." The field work (Phase II) reported here is a fulfillment of that wish. This report is the second in a planned series of publications on the archaeology of the Bliss Islands. The following topics are covered:

1. a summary of the Phase I research;
2. a discussion of prehistoric shellfishing in the Quoddy region, which is based on the Phase I research and includes much background information about the Bliss Islands;
3. an account of the field work undertaken during Phase II;
4. a summary of the prehistoric and historic chronology of the Bliss Islands as it is presently known;
5. descriptions and analyses of several of the smaller archaeological sites on the islands;
6. a summary of some of the analytical work undertaken to date.

The summary at the end of this volume concentrates on revisions to my interpretations of the Bliss Islands' prehistory as a result of the Phase II research. Plans for further analyses are also discussed.

Each section of this report is self-contained; the content ranges from highly technical to popular. I have attempted to keep the tone as non-academic as possible, and to say as much as possible with pictures. All references cited appear in one section.

This volume is dedicated to the residents of Back Bay, New Brunswick, in gratitude for their interest, assistance and hospitality.

David W. Black
McMaster University
August 1987

Abstracts

During 1981, an archaeological survey of the Quoddy region, southern New Brunswick was conducted. Sites were recorded and surface collected. Prior to this, archaeological research was undertaken in 1869 by S.F. Baird, an associate of the U.S. National Museum. Baird visited two of the sites on the Bliss Islands, but his descriptions make it unclear which two sites they were. Seven sites were chosen from the 1981 survey for the Bliss Islands Archaeological Project , which has been aimed at interpreting the prehistory and human ecology of these sites. Interpretations of the sites are updated based on the most recent archaeological fieldwork conducted on the islands.

During the summer of 1983, further investigations were conducted. Phase I of the Bliss Islands Archaeology Project involved the test excavation of the Weir site (BgDq6), the Camp site (BgDq4), and the Ledge site (BgDq5) and the further survey and recording of five historical sites. The Weir site proved to be a large,deep, complexly stratified shell midden. The Camp site is also a large shell midden, but contains mainly black soil mixed with marine shell and is much more shallow than the Weir site. The Ledge site is a small, shallow, stratified shell deposit . The Weir site was dated to 1280 ± 60 BP (Beta 8198), the Camp site to 300 ± 50 BP (Beta 8196), and the Ledge site to 380± 50 BP (Beta 8197)

At the conclusion of the Phase I research recommendations were set forth for the next phase of the project. The first recommendation was that the major archaeological resources of the Camp site and the Weir site be extensively excavated. Secondly additional testing was suggested for the smaller middens in order to evaluate the chronological position of these and similar sites. Further survey was recommended for the discovery of non shell midden sites on the islands. Finally, it was recommended that the historical archaeology of the islands be de-emphasized until the rapidly eroding coastal sites can be adequately excavated and documented.

It appears that Baird greatly underestimated the potential of the Bliss Islands sites as an archaeological resource. Testing in 1983 did not prepare the author for the amount and diversity of the material recovered in 1986.

Phase II of the Bliss Islands Archaeology Project was conducted in 1986 to follow up on the above recommendations. Survey, testing and large scale excavations were conducted More than 18,000 prehistoric specimens have been collected from the islands to date. The lithic artifacts include bifaces, projectile points, scrapers, cores, flakes, and groundstone artifacts. The ceramics include grit-tempered vessels with linear and rocker dentate and psuedo–scallop shell motifs, and a few sherds of shell- tempered ceramics. Organic artifacts include harpoons, points, awls, needles, modified beaver incisors and modified scallop shells. Prehistoric faunal remains include a wide variety of terrestrial and

marine mammals, birds, fish, and shellfish. In addition, a considerable number of historic artifacts were recovered during the project.

The Bliss Islands appear to have been occupied at least sporadically from about 2300 years ago until the present. Both the major sites, the Weir and Camp sites were occupied for a considerable length of time. Four radiocarbon dates have been processed from the Phase II excavations thus far. The results at the Camp site are for a Middle Ceramic period occupation to 1650 ± 70 B.P.(B -21138). A series of three dates for the Weir site, 1230 ±70 B.P. (B-21140), 1800 ± 90 B.P. (B-21139), and 2270 ± 70 B.P. (B-21141), is consistent with the stratification of the site, and indicates that it was occupied from the Early Ceramic period to Late Ceramic period times. The Lighthouse Cove and the Pintlowes Cove sites probably date relatively late in the prehistoric sequence. The White Water site does not represent an aboriginal site as previously suspected. The Ledge site is unusual in that , while certainly a late period prehistoric shell midden. Test excavations at the Northeast Point site have revealed it to be a significant prehistoric occupation rather than merely a 'find spot'. The artifact assemblage suggests that it dates to the Late Ceramic (Woodland) period; the site will be radio-carbon dated in an attempt to confirm this interpretation. The Northeast Point site is unusual in that it contains no shell deposits. All of the sites are being eroded by rising sea levels, and all of the middens except the Weir site have been disturbed by historical activity.

The research strategy for the Bliss Islands Archaeology Project was to choose a group of sites in close proximity to one another, to test these sites, and to use a comparative framework to examine both temporal sequences and settlement patterns in a delimited area. The Bliss Islands proved to be the perfect setting for such a micro-regional study.

Acknowledgements

Most of Phase II of the Bliss Islands Project was conducted in the picaresque style that makes archaeological field work both exciting and memorable: trips from Waweig to Back Bay; trips from Back Bay to Bliss; trips from Bliss to the mainland; those gruelling trips from Fredericton (5:30 a.m. at Tim Horton's in Fredericton, 7:30 a.m. at Smitty's in Pennfield Ridge, 8:30 a.m. at the Back Bay wharf, 9:30 a.m. at Tommy Mitchell's camp on Bliss... and then a full day's work); brisk hikes to the sites on chilly mornings; tired strolls back to camp on warm afternoons... so much movement.

Then there were the moments that made all the movement worthwhile: Scott's 'good though' story about the lumber camp; Colin asking "Do the words red ochre mean anything to you?"; Stuart expounding how "sea urchin been-a verrry gooood to me!"; Sam, outside Tommy's camp at 8:30 a.m., in the freezing cold

and the pouring rain, telling me "I don't like this summer camp any more, Uncle Dave." -- I could go on for hours.

My sincere thanks are extended to everyone mentioned above and below, for their assistance, and especially for the memories.

The following organizations made the project possible and contributed to its success:

1. Archaeological Services of New Brunswick, Provincial Parks and Historic Sites Branch, Department of Tourism, Recreation and Heritage provided funding and equipment for the field work;
2. the Department of Graduate Studies, McMaster University, and the Social Sciences and Humanities Research Council of Canada provided funding for the principle investigator;
3. the Department of Anthropology, St. Mary's University, co-operated with the project through its archaeological field school program;
4. the Charlotte County School Board provided lab space in the Back Bay Elementary School;
5. Connor's Bros. Ltd., Black's Harbour, gave permission to conduct field work on their portion of the islands;
6. the Department of Anthropology, McMaster University, provided lab space and lab equipment for the analysis, and word processing facilities for the production of this manuscript.

I wish to thank the following individuals for their assistance:

1. at Back Bay: Thomas Mitchell, Frances Mitchell, Samuel Mitchell, Weldon Mitchell, Arthur Leslie, Tony Cook, Dave Cook, Jim Tubbs;
2. at Connor's Bros., Black's Harbour: James Stewart, Fraser McLeod;
3. at Waweig: Eugene Simpson;
4. in Fredericton: Chris Turnbull, Scott Finley, Louise Hale, Patricia Allen, Albert Ferguson, Nick Paul, Marc Lavoie;
5. at St. Mary's University: Michael Deal, Stephen Davis;
6. St. Mary's field school students: Susan Crowe, Peter Donkin, Charles Keeler, James MacPhee, Valery Monahan, Colin Warman, Ruth Whitehead;
7. volunteer field workers: Ellen Cameron, Stuart Dalton, Joanna Davidson, Ellen Foulkes, Sam Gallagher, Gary Gerson, Dan Horsman, Kevin Robins, Emelie Seheult;
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Pamela Kaufman, Connie O'Shaughnessy, Becky Southern, Judith Stewart, Jan Walli;
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12. for their assistance with the drafting of figures: Angel Gomez, Debra Novosad;
13. for their contributions to the photography: Louise Hale, Scott Finley, Chris Turnbull;

Finally, I extend a special thanks to the residents of Back Bay, and to the Sunbury Shores Arts and Nature Centre in St. Andrews, for their warm responses to my public lectures on the project.

PART I: Phase I Revisited

CHAPTER 1

Bliss Islands Archaeology Project, Phase 1

by D.W. Black

In 1981 an archaeological survey of the Back Bay and Letang Harbour area shorelines of the Quoddy region of southern New Brunswick (Figure 1-1) was conducted by the Archaeology Branch, New Brunswick Department of Historical and Cultural Resources (now Tourism, Recreation and Heritage). Among the large number of archaeological sites recorded during the survey were six shell midden sites and one non-shell midden site (all interpreted as prehistoric sites) located on the Bliss Islands (Figure 1-2). During the summer of 1983, the Archaeology Branch employed me to further investigate the archaeology of the area. My research strategy was to select a group of sites in close proximity to one another, to test these sites, and to use a comparative framework to examine both temporal sequences and settlement patterns in a delimited area. The Bliss Islands proved to be a perfect setting for such a micro-regional study.

My 1983 field work concentrated on the shell middens. With the assistance of a small crew, I was able to map all six of the sites, excavate test units in the three larger shell middens, and closely examine and sample the smaller middens. I also surveyed for additional archaeological sites, and recorded a number of historic sites on the islands. No additional prehistoric sites were found.

During the 1983/84 academic year, the material from this testing was analyzed by myself and several undergraduate students at McMaster University. The results of the project were presented in a manuscript (Black 1985b) and in a paper (Black 1984a) presented at the Canadian Archaeological Association meeting in Victoria, British Columbia. In addition, the previously unpublished paper which I have included as Chapter 2 in this manuscript was written early in 1985.

I concluded that the six shell middens occurred as two clusters, each comprised of three sites (Figure 1-2). The three larger middens (the BgDq cluster) are located on the thoroughfare between the Northeast and Central islands, and are all definitely prehistoric. One of these, the Weir site (BgDq6) was dated to the Middle Woodland period (1280±60 BP; B-8198). The other two prehistoric middens, the Camp site (BgDq4) and the Ledge site (BgDq5), were dated to the late prehistoric period (300±50 BP; B-8196, and 380±50 BP; B-8197, respectively).

I noted that while generally similar to other sites of the same age in terms of structure and location, these prehistoric sites contained relatively few artifacts, and in particular, almost completely lacked aboriginal ceramics. However, I also noted the excellent preservation of bone tools and food bones in the sites. I interpreted the radiocarbon dates as suggesting that the Bliss Islands were occupied only during the later part of the prehistoric period. My interpretations were limited by the small amount of excavated material.

The second (BgDr) cluster of sites includes the smaller shell middens occurring around Pintlowes Cove on the Central and Southwest islands. No diagnostic artifacts were found on these sites and I was unable to radiocarbon date them. I concluded that these may represent historic shell deposits.

At the end of my preliminary report, I made four recommendations concerning the Bliss Islands sites. I noted that the Weir site and the Camp site are major archaeological resources and recommended that they be extensively excavated. I advised that a small amount of additional testing be conducted at the smaller shell middens in order to evaluate the chronological position of these and similar sites. I recommended further survey work on the islands with the aim of discovering further non-shell prehistoric sites. Finally, I suggested that the historic archaeology of the islands be de-emphasized until the rapidly eroding prehistoric coastal sites had been adequately excavated and documented.

FIGURES

FIGURE 1-1 Map of the Quoddy region showing the locations of places mentioned in the text.

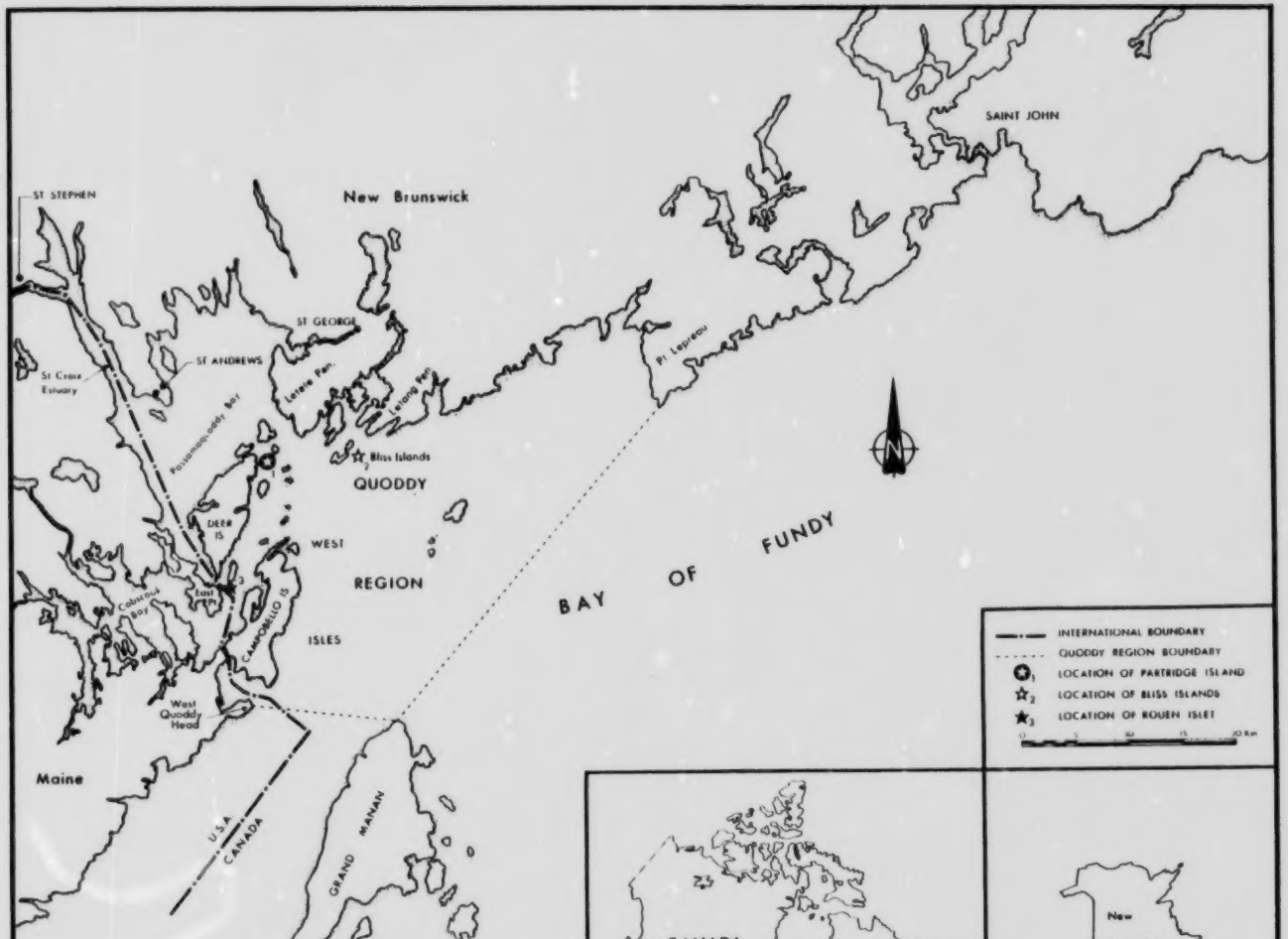
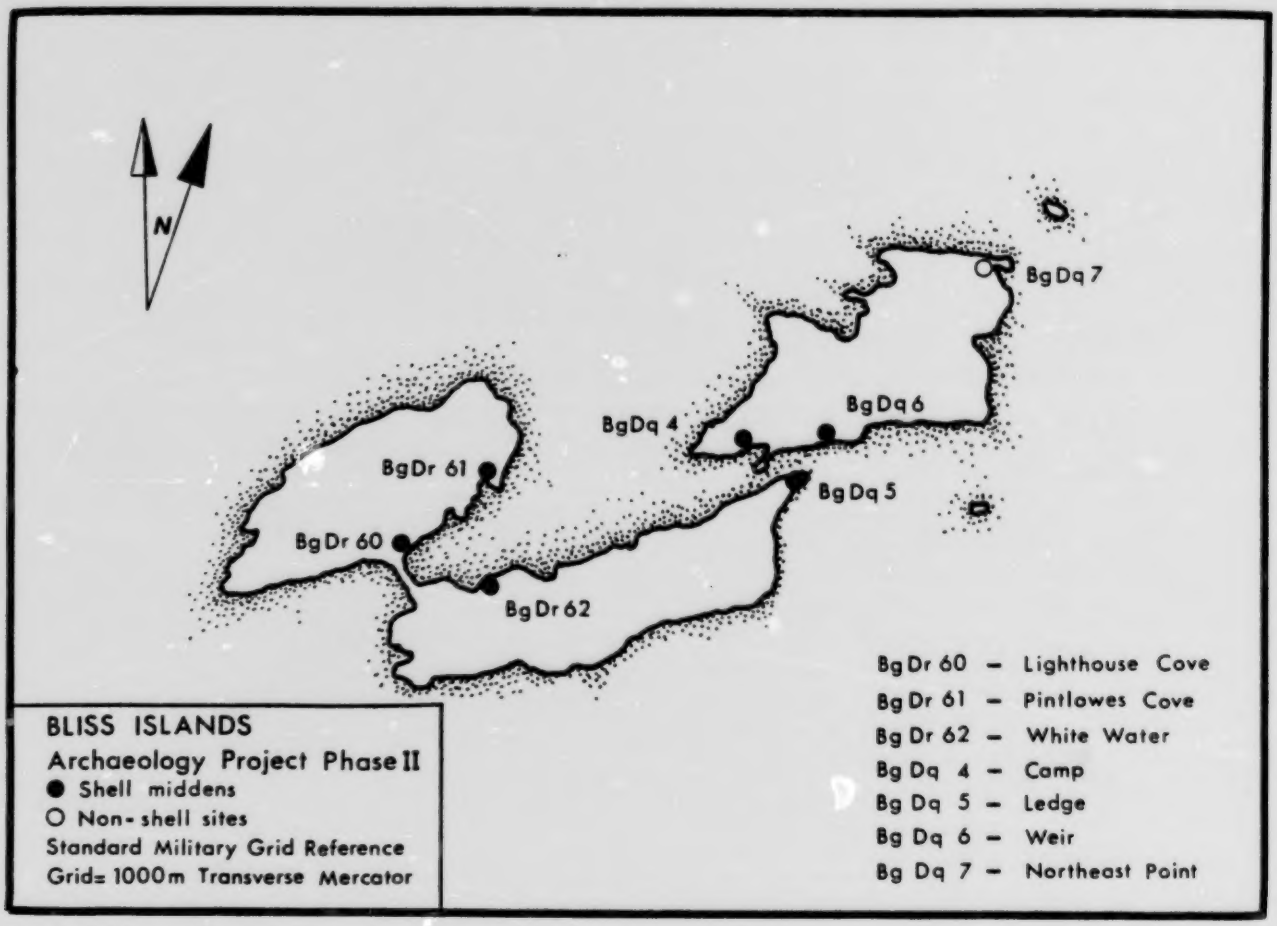

SAINT JOHN
ST STEPHEN
New Brunswick
ST GEORGE
ST ANDREWS
St Croix Estuary
Passamaquoddy Bay
Letete Pen.
Letang Pen.
Pt Lepreau
Bliss Islands
QUODDY
DEER IS
WEST
REGION
ISLES
Cobscook Bay
East Quoddy
CAMPOBELLO IS
West Quoddy Head
Maine
USA
CANADA
GRAND MANAN
BAY OF FUNDY
N
INTERNATIONAL BOUNDARY
QUODDY REGION BOUNDARY
LOCATION OF PARTRIDGE ISLAND
LOCATION OF BLISS ISLANDS
LOCATION OF ROUEN ISLET
CANADA
New Brunswick

FIGURE 1-2 The Bliss Islands showing the locations of the archaeological sites referred to in the text.


N
BgDq 7
BgDq 6
BgDq 4
BgDr 61
BgDq 5
BgDr 60
BgDr 62
BLISS ISLANDS
Archaeology Project Phase II
● Shell middens
○ Non-shell sites
Standard Military Grid Reference
Grid= 1000m Transverse Mercator
BgDr 60 – Lighthouse Cove
BgDr 61 – Pintlowes Cove
BgDr 62 – White Water
BgDq 4 – Camp
BgDq 5 – Ledge
BgDq 6 – Weir
BgDq 7 – Northeast Point

CHAPTER 2

Intensive Shellfishing in the Quoddy Region: A Preliminary Analysis of the Weir Site

by D.W. Black

During the summer of 1983, I conducted an archaeological project on the Bliss Islands in the Quoddy region of southern New Brunswick (Figure 2-1). The purpose of the project was to conduct preliminary excavations on several archaeological sites previously recorded on the islands, and to survey for additional archaeological resources. The results of the project are reported in (Black 1985b)

The largest site tested during the project is an extensive shell midden deposit which has been named the Weir site (BgDq6). In this paper, I describe the Bliss Islands, and summarize previous archaeological research conducted there. Against this background I present a description of the Weir site and the archaeological sample recovered from it. My analysis of this material focuses on the subsistence activities conducted at the site, employing some of the methods used by R.J. Barber (1982) in his analysis of the Wheeler's site shell midden in Massachusetts. My conclusions consist of a comparison of the types of subsistence patterns represented at the Wheeler's site and the Weir site.

Description of the Bliss Islands

The Bliss Islands group (Figure 2-2) is comprised of three connected islands which form the southeastern boundary of Bliss Harbour, a shallow, sheltered body of water located at the mouth of the Letang Estuary. The islands are 1 km offshore to the southeast of Pea Point, and are separated from the mainland by a narrow but relatively deep (30 m) channel which leads into Black's Harbour. The islands are located on an inundated shelf of land which extends from Back Bay to Pea Point. Water depths on the shelf are 15 m or less; on the Bay of Fundy side of the islands the bottom drops away rapidly to much greater depths.

There is no permanent settlement on the Bliss Islands. The nearest mainland communities are Black's Harbour and Back Bay. Fishermen from these communities inhabit the islands seasonally. The Quoddy region is characterized by a continental climate modified by marine influences (Thomas

1983:5-8). The air is humid; precipitation and overcast weather are common throughout the year, particularly in the winter. Winds from the ocean (northeast or southeast) bring precipitation in all seasons. Gale force winds are common in winter but rare in summer. Most coastal, ercsion occurs during winter gales.

In the spring the Quoddy region is characterized by cool changeable weather. Fog is common in the summer, especially in insular areas. The prevailing winds in summer are southwesterly and of low velocity. Autumn is generally characterized by settled pleasant weather and a gradual transition to winter. The prevailing winds in winter are northwesterly or westerly. Heavy snow accumulations are rare and there is negligible formation of sea ice. The weather patterns at the Bliss Islands are probably typical of those in the Quoddy region generally.

The bedrocks of the Bliss Islands are part of the Perry Formation, which is composed of conglomerates, sandstones, shales, and minor igneous intrusive dikes (MacKay et al 1978:14). The most common bedrocks observed on the islands are conglomerate and sandstone, the conglomerate being more resistant and producing high relief, while the sandstones result in low relief. The Northeast and Southwest islands are composed mainly of conglomerate covered by thin glacial deposits; the Central island is composed mainly of sandstone covered by a thicker mantle of glacial till. Terrestrial elevations on the Bliss Islands are 20 m above mean sea level or less.

The Northeastern and Central islands are joined by a narrow thoroughfare which is exposed between two extensive intertidal zones at low tide. This thoroughfare formed within the past century; previously these islands were joined by a narrow isthmus. The Central and Southwestern islands are joined by a high narrow bar of cobbles and gravel which is inundated only at the highest water levels.

The tidal range at the Bliss Islands averages more than 5 m (with a maximum of almost 8 m), resulting in extensive and complex mixed-substrate intertidal zones. Rock outcrop and boulder intertidal and subtidal substrates are common on all of the shores except in Fishermans and Pintlowes Coves, and in the thoroughfare, where a dense gravelly mud has formed. Sandy substrates are rare. Tide pools exist, especially on Murphy's ledge, at which an area of more than 1 km^2 is exposed at low tide. The waters around the island are relatively clear, and freshwater influence is minimal.

The islands are almost completely wooded except where they have been artificially cleared. The forest is typical of coastal forests in the area (see Hinds 1983:269-276), being dominated by coniferous trees such as white spruce, black spruce, and balsam fir. In its natural state this forest is almost impassible due to windfalls and debris, because forest fires are uncommon in the fog zone of the

coast. However, naturally open areas exist where soils are thin, and the forests on the islands have been thinned by logging activities. Open areas are covered by growths of brambles, juniper, alders, and wild flowers.

Freshwater marshes occur in depressions in the bedrock above the high water line. On the Northeast and Southwest islands short streams drain the marshes; the water in these sources is red and has a high organic content. On the Central island a significant source of clear water is present where the ground water is trapped and filtered by glacial deposits.

The largest naturally clear areas are the two salt marshes on the Northeast island. The largest of these completely bisects the island, and contains a large brackish pond. The salt marshes are bounded at their shoreward edges by barrier beaches, and appear to be inundated by salt water only at the highest water levels.

The Bliss Islands are large enough to support large terrestrial animals. Deer are present, and informants have observed moose wintering on the islands. Beaver have also been occasionally observed. Small mammals such as mice and voles are abundant. Avian wildlife is also abundant, as it is in most parts of the Quoddy region (Christie 1983). Gulls, herons, and other shorebirds were observed during the field season, and informants indicated that ducks are common during the migration seasons.

The Bliss Islands area is generally characterized by high marine productivity and diversity (MacKay et al 1978). Intertidal productivity is particularly high on the rocky shores of the Northeast island and on Murphy's Ledge. Periwinkles, sea urchins, mussels and sea weeds are the most visible intertidal inhabitants. There are no major clam beds on the Bliss Islands (MacKay et al 1978:128), but soft-shelled clams *(Mya arenaria)* are present in the sheltered coves and in the thoroughfare. Scallops and lobster are common offshore, as are herring, groundfish, and flounders. Seals are present around the ledges on the Northeast island, and porpoise are present in open water.

It is difficult to generalize about such a complex environment, but summer/autumn is probably the season of maximum productivity of all local habitats. Summer is the season of maximum plant productivity. During the late summer and early autumn numerous fish species come inshore. Sea urchins become most productive late in the autumn. Access to the islands by small watercraft is easiest and safest in late summer and autumn.

Archaeological Research on the Bliss Islands

The earliest record of archaeological activity on the Bliss islands is contained in a paper by S.F. Baird (1881). Baird, an associate of the U.S. National Museum (now the Smithsonian Institution), observed and excavated 'aboriginal shell mounds' in several areas of southern New Brunswick during the summer of 1869. He tested two sites on the Bliss Islands, and, although his descriptions of the locations of these sites are unclear, it is possible that one of them was the Weir site. Baird's paper contains no information about the artifacts he recovered; in comparison to other sites he tested, he considered the Bliss Islands sites to contain few artifacts and bones.

No further archaeological activity took place on the islands until 1981, when a coastal site survey resulted in the recording of six shell middens and one non-shell midden prehistoric site. The survey report (Davis and Ferguson 1981) noted the serious impact of coastal erosion on these sites and recommended further investigation of them.

The six recorded shell middens became the focus of the research conducted on the Bliss Islands in 1983. Test excavations determined that three of these sites are definitely prehistoric, and suggested that the other three may be historic shell deposits (Black 1984a, 1985b). A number of historic sites, dating to the 19th and 20th centuries, were also recorded during the 1983 field season (Black 1983b, 1985a & b).

The Weir Site

The Weir site (Figure 2-3) is a large deep shell midden about 450 m2, in area and averaging more than 50 cm in depth. The site is located on the southeastern shore of the Northeast island, and is exposed to the south and southwest. The site is situated on the western end of an east- west oriented, bedrock (conglomerate) cored knoll which is being progressively denuded and isolated from the rest of the island by rising sea levels. The site appears to consist of relatively separate patches of midden located on the tops of three separate rises in the knoll. Another small patch of midden on a fourth rise, now completely intertidal, about 15 m west of the main site area, suggests that the site may once have been considerably more extensive than it now appears. Shell is exposed and eroding on the southern and western edges of the site, and in a narrow ravine between two of the patches of midden.

Immediately south of the Weir site is a steep rocky intertidal zone. Southeast of the site is the extensive low gradient intertidal zone of the thoroughfare. To the west and northwest of the site is the large salt marsh which bisects the island. Immediately north of the site, and covering the northern part of the site, is a dense stand of spruce and fir trees. The central and southern surfaces of the site

are covered by clumps of brambles (*Rubus* sp.); however, trunks and roots of dead conifers among the brambles indicate that trees covered this part of the site until very recently. At the eastern end of the knoll on which the site is located is a small deep cove (Spider Cove) containing the herring weir for which the site is named.

Two partly overgrown tractor roads are present in the forest north of the site, and one of these crosses the northeastern corner of the midden, creating a small surface exposure of shell. These trails are the only indicators of historic activity at the site.

Four excavation units were dug in testing the site. Two of these, units 1 and 4, were 1 m^2 units excavated to the full depth of the site; most of the description below pertains to these units. Unit 2 was a 50 cm^2 , test which exposed a thin living-floor feature over a dense shell deposit near the treeline. Unit 3 was also 50 cm^2 , and excavated beyond the northern limit of the site; it exposed a 50 cm depth of loose peat soil covering the bedrock.

The stratification in units 1 and 4 is summarized schematically in Figures 2-4 and 2-5 respectively. Unit 1 intersected two living-floor features composed of fine rounded storm beach gravel mixed with black soil, which are separated by, underlain by and covered by dense shell midden deposits. In unit 4 the stratification consists of a series of superimposed massive shell midden deposits. Fine trampling layers of highly fragmented shell indicate that some surface activity took place during the deposition of the middens, but there are no living floors in this part of the site. A thin layer of gravelly soil between the two lowest shell deposits probably represents a buried soil horizon; on this surface a complete dog (*Canis* sp.) skeleton was found. In both units the cultural layers are covered by 20 cm or more of dark red peat soil.

Wood charcoal from layers 4, 5 and 6 in unit 4 (Figure 2-5) was analyzed using the radiocarbon technique and produced a date of 1280± 60 BP (Beta-8198). Unfortunately, it was not possible to date any of the layers in unit 1.

Artifact Assemblage

The artifact assemblage from the two excavation units includes lithics, lithic debitage, ceramic sherds, and organic (bone) artifacts. A brief description of the assemblage follows:

Ceramic Sherds:

These four pieces of aboriginal pottery are each about 1 cm^2 in size. None of the sherds preserves the decorated exterior of a vessel; however, two exhibit evidence of smoothing on their surfaces. All four sherds contain a coarse ground-granite temper, and have been fired to a bright orange colour.

Biface Fragment:

This piece of semi-translucent quartz probably derives from a larger biface broken during manufacture. There is no indication of the purpose for which the piece was intended.

Bipolar Core:

A small pebble of semi-translucent quartz was worked by a bipolar technique to produce this artifact. The core is rectangular in shape and lenticular in cross-section, and flakes have been driven off from both ends. Some cortex remains on one surface.

Abrading Stone:

This artifact is a flat oval pebble of grey, fine-grained volcanic rock, probably diabase. The stone has a slightly gritty texture and has been slightly channelled on one surface through use as an abrader. One end is battered through use as a hammerstone.

Pecked Stone Celt:

This stone may be a pebble having a fortuitously celt-like shape which was curated for this reason, or it may have been purposively shaped by pecking. The material is a crystalline micaceous volcanic rock, dark grey in color. Some evidence of battering at one end suggests that the piece may have functioned as a hammerstone.

Lithic Debitage:

The lithic debitage recovered consists of three flakes of fine-grained grey volcanic materials. All of the lithics and debitage recovered were manufactured from locally available materials.

Beaver Incisor Tools:

One of these conforms to Bishop's (1983:74) Type A beaver incisor tools, the other two conform to Bishop's Type B incisor tools. The function of modified beaver incisors is unclear, but carving tasks involving wooden artifacts were probably performed with them.

Bone Point:

This artifact is a carved portion of a mammal longbone. It has been ground to a point at one end, and conforms to artifacts referred to as awls or bodkins. Several functions are possible--a point for a leister, a netting needle, or an awl for hide working.

Stemmed Unbarbed Harpoon Point:

This projectile point was made of a section of the rib of a large mammal. The blade is excurvate in shape and lenticular in cross section, and both edges have been sharpened. One of the shoulders is square, and the adjoining edge of the stem is straight; on the other edge of the stem is a carved open notch immediately below the shoulder. The base of the stem is partly broken, but originally was pointed-convex in shape. The most probable function of this tool was as a harpoon or spear blade.

The artifact assemblage from the Weir site is described in greater detail in Black (1985b).

Shellfish Remains

Shellfish remains are by far the predominant structural component of the site. The invertebrate faunal assemblage is dominated by soft-shelled clams (*Mya arenaria*), many of which are very large individuals. Sea urchins *(Strongylocentrotus droebachiensis)*, and horse mussels *(Modiolus modiolus)* make up most of the other shellfish remains although several other species, common mussels *(Mytilus edulis)*, dog whelks *(Nucella lapillus)*, northern whelks *(Buccinum undatum)*, limpets *(Acmaea testudinalis)*, periwinkles (*Littorina saxatilus* and *L. obtustata)*, saxicaves *(Hiatella arctica)*, scallops *(Placopecten magellanicus)*, and barnacles, are also present. Several concentrations of very large common mussel individuals were found in the excavation units, as well as a number of large subtidal barnacles *(Balanus balanus)*.

Vertebrate Remains

In unit 1 the vertebrate faunal remains are those of white-tailed deer *(Odocoileus virginianus)*, harbour seal *(Phoca vitulina)*, beaver *(Castor canadensis)*, and muskrat *(Ondatra zibethicus)*. These bones occurred in concentrations on the living-floor features. In the lowest cultural layer (#1, Figure 2-4) a small concentration of large codfish (Gadidae) bones occurred.

In unit 4 fish remains were the most common bones, including several small but dense concentrations of small fish remains. Two types of fish are identifiable, one type positively identified as small codfish (Gadidae), and the other

type thought to be herring (Clupeidae). These concentrations of fish remains may represent coprolites.

The mammal bones in unit 4 include deer, seal, beaver, and dog (*Canis* sp.). The canid remains consist of a complete, highly fragmented, but apparently articulated skeleton of a large (probably domestic) dog. This animal was not butchered, and also does not appear to have been intentionally buried. The skeleton lay on the interface between two shell layers.

Only a few bird bones were found, and none of these are identifiable to species. However, one element is identifiable as the humerus of a large shorebird (Alcidae).

The fish and seal remains suggest minimally a summer/autumn occupation of the site (see Black 1983a:147-150, 153; Sanger 1982:202; Bourque 1971:229-230), but occupations in other seasons cannot be ruled out. The faunal sample from the Weir site is considered quantitatively in the following sections of this chapter.

In summary, although the Weir site has been adversely impacted by rising sea levels, the remaining portion of the site is a large and remarkably intact prehistoric cultural deposit, probably representing a considerable period of occupation. The radiocarbon date obtained suggests a late Middle Woodland occupation. The cultural features observed and the faunal remains recovered suggest affinities with other Middle Woodland shell midden sites excavated in the insular areas of the Quoddy region, such as the Partridge Island site (Bishop 1983; Black 1983a). The artifacts recovered, while not diagnostic of the Middle Woodland period specifically, do not contradict this interpretation of the cultural history of the Weir site.

Prehistoric Subsistence Activity at the Weir Site

The Weir site is similar in several respects to the Wheeler's site, a Middle Woodland shell midden located on the northern edge of the Merrimack river estuary in Massachusetts adjacent to extensive intertidal mudflats (Barber 1982). The Wheeler's site has been radiocarbon dated to the period from 700-1300 BP (Barber 1982:14), roughly contemporary to and somewhat later than the dated occupation at the Weir site. The Wheeler's site faunal assemblage is predominated by invertebrate remains as is that of the Weir site (although, in the case of the former, the shellfish are almost exclusively soft-shelled clams plus a few moon snails *(Lunatia heros)*. All of the vertebrate species found at the Weir site are found at the Wheeler's site (Barber 1982:86), with the exception of the harbour seal. In addition, Barber (1982:73-84) has used several types of evidence to suggest that the Wheeler's site was occupied seasonally in the late summer and autumn, the same seasonality which is most strongly indicated at the Weir site.

Barber (1982:98-99) has used an ecological measurement known as niche width to measure the degree of specialization in subsistence activities represented by the faunal remains at the Wheeler's site, and to test his hypothesis that "Lower estuaries in temperate zones will be exploited by hunter-gatherers primarily according to specialized strategies". He has concluded that the inhabitants of the Wheeler's site were engaged in specialized intensive exploitation of shellfish for preservation, storage and consumption in other seasons. Barber describes the adaptation at the Wheeler's site as bifocal (1982:95-98), distinguishing between specialized food procurement for storage and generalized food procurement for day to day subsistence during the occupation of the site.

The insular areas of the Quoddy region are also technically part of a lower estuary (Trites and Garrett 1983:25), although one in which the marine influences are much greater than on the lower Merrimack. However, because of the limited terrestrial resources available on islands, it is predictable that prehistoric occupations on the islands of the Quoddy region were oriented mainly toward the exploitation of shellfish and other marine resources. My purpose in the following discussion is to substantiate the hypothesis that the Middle Woodland inhabitants of the Weir site were as specialized in the exploitation of shellfish as the Middle Woodland inhabitants of the Wheeler's site. In this section of the chapter I present an analysis of the Weir site faunal assemblage patterned after Barber's analysis of the Wheeler's site. I have used Barber's methods (for example, Levins [1968] niche width formula, see Table 2-3) and quantitative data (for example, meat weight equivalents for several animal species [1982:87-91]) quite uncritically, in order to make the data from the two sites as comparable as possible given the differences in sample size. Information drawn from other sources is noted where it is used below.

The data are presented in four tables. Table 2-1 indicates the volume of material analyzed from the Weir site. Table 2-2 presents a quantification of the faunal remains from this sample. Table 2-3 compares niche width measurements calculated from the Weir site data with those from the Wheeler's site data. Table 2-4 indicates the variability in shellfish exploitation in the seven sampled midden layers in unit 4 of the Weir site.

The amount of archaeological shell recovered from the Weir site has been calculated from column samples of known volume taken from each of the intersected midden layers (see Black [1985b] for details). The amount of each shellfish species in each sample was measured and these amounts projected to the volume excavated from each layer to estimate the actual amount of each species in the faunal sample. These amounts of archaeological shell have been converted to equivalent fresh meat weights using meat:shell ratios measured from modern specimens of each species (Black 1983a:237-268). The fresh meat

weights were then converted to dry meat weights using the following estimates of water content: 85% water for clams (Barber 1982:88), and 40% water for gastropods. I have equated the water content of sea urchin roe with that of clams, and the water content of barnacles with that of gastropods.

The vertebrate species have been quantified using minimum numbers of individuals (MNI) and converted to equivalent meat weights using estimates from Barber (1982:87-91) for the large codfish, the bird, and the deer, and from Stewart (1974) and Banfield (1974) for the harbour seal. The small fish have been converted to meat weights using measurements taken by myself on commercial herring. The proportional contribution of each vertebrate and invertebrate species to the total estimated meat weight assemblage has been calculated, and these proportions have been used to calculate the niche widths given in Tables 2-3 and 2-4.

The beaver, muskrat and dog individuals in the Weir site faunal assemblage have been omitted from this analysis because the rodents are represented only by cranial elements which were probably curated for tool use (compare Black 1983a:127-128; McCormick 1980:148; Sanger and Chase 1983), and because there is no evidence that the dog was butchered and consumed. Similarly, Barber (1982:67, 86) has included the dog individual in the Wheeler's site assemblage in his analysis because it was butchered, but excluded the reptile, amphibian, small fish, and surf clams (1982:64-65, 86) from his analysis because he suspects that these remains are intrusive into the prehistoric component. I have included the small fish individuals from the Weir site in my analysis because they are numerous, and I suspect that they do represent food remains.

This quantification of the Weir site faunal sample indicates that shellfish comprise 65.15% of the assemblage, fish 1.55%, birds 0.30% and mammals 33.00%. The comparable statistics for the Wheeler's site sample are shellfish 88.70%, fish 2.30%, birds 0.80% and mammals 15.1%. Clearly, the ranking in importance of the zoological classes in the two assemblages is identical, although there are small quantitative differences in their relative importance. These data indicate two points of interest. First, the Weir site data could be used to support the contention that the subsistence activities of the site's inhabitants were bifocal, as Barber has argued for the Wheeler's site adaptation. Second, it is evident that shellfish were intensively exploited at the Weir site. By intensive exploitation I mean that the ratio of effort invested to area exploited was high, and that presumably the subsistence return for this effort was large enough and/or important enough to justify the investment.

At first glance, the niche widths calculated for the Weir site seem much wider (indicating a more generalized subsistence strategy) than those calculated for the Wheeler's site (Table 2-3). For example, if all species are calculated

separately, which is the usual way in which the niche width formula is applied, the niche width for the Weir site (4.92) is more than three times as wide as that for the Wheeler's site (1.51). However, if the shellfish assemblage of the Weir site is considered as a single resource category, which is effectively the case at the Wheeler's site where virtually all of the shellfish are soft- shelled clams, much of this difference disappears. The same is true for niche widths calculated for seafood exploitation. On the other hand, the niche width calculated for shellfish exploitation at the Weir site is three times wider than that calculated for the Wheeler's site.

Two major differences between the subsistence patterns of the Weir site and the Wheeler's site emerge from this comparison. First, a large mammal resource, the harbour seal, is present in the Weir site faunal assemblage, but not in the Wheeler's site. The effect of this resource on the quantitative data for the Weir site is to increase the apparent importance of mammal resources as compared to shellfish resources. Second, while shellfish exploitation at the Wheeler's site was restricted almost exclusively to a single species throughout the occupations at the site, shellfish exploitation at the Weir site included a number of major and minor economic species, which varied in importance from one occupation to the next.

I have included the data in Table 2-4 to illustrate the significant differences in shellfish exploitation between distinct midden layers at the Weir site. These differences are expressed both in terms of the degree of specialization in shellfishing, and in changes in the species most commonly exploited. Similar variations may be present in the vertebrate faunal assemblage at the Weir site but these cannot be explored in the small sample analyzed here. The explanation of this type of variation over time within particular shell midden sites presents an important challenge for future midden analyses in the Quoddy region.

Summary and Conclusions

The similarities in the subsistence strategies practiced at the two sites compared, the Wheeler's site and the Weir site, are considerable. The major differences can be attributed to three factors, one methodological and two substantive. The small sample of material analyzed from the Weir site has probably exaggerated the importance of the vertebrate faunal resources in the sample, since the MNIs calculated are probably an unrealistically large estimate of the amount of vertebrate meat to be compared to the amount of invertebrate meat inferred from the shell midden matrix (see the discussions of MNI in Barber [1982:86-87] and Grayson [1979]). If the sample analyzed here is representative of the Weir site as a whole, and an examination of the eroding edges of the sites suggests that it is, I suspect that a larger sample of material from the site would

indicate a pattern more similar to that of the Wheeler's site; that is, invertebrate resources constituting 80% or more of the total faunal resources preserved. Both of the sites suggest bifocal subsistence strategies, but the day to day subsistence of the inhabitants of the Weir site emphasized marine resources more than terrestrial resources. This is not surprising given the insular location of the site.

The contrast between the shellfish assemblages at the two sites can probably be attributed to differences in the local geomorphological and biogeographic contexts of the sites. Barber (1982) does not provide a detailed inventory of the invertebrate resources in the vicinity of the Wheeler's site, but his discussions of the Merrimack estuary (1982:7, 60) suggest that soft-shelled clams are by far the dominant intertidal resource present. In general, this type of soft substrate estuarian intertidal zone in the Quoddy region is also characterized by biotic communities in which soft-shelled clams are the most common molluscan macrofauna, and in which moon snails are often present (see, for example, Steele 1983:82). At the Weir site, in contrast, several biotic communities are present in close proximity to one another, with rocky substrate communities predominating. Rocky substrate communities are characterized by high productivity and species diversity of macrofauna, and complex trophic relationships (Thomas et al 1983; Logan et al 1983; Wildish 1983:150-152). The invertebrate assemblage at the Weir site suggests that the inhabitants of the site exploited molluscan macrofauna, echinoderm macrofauna, and sessile arthropods from at least three biotic communities: the rocky intertidal community (Thomas et al 1983:53-70), the coarse sedimentary intertidal community (Steele 1983:79-93), and the crustose coralline algae community located 0-20 m below mean low water level (Logan et al 1983:132-133). The shellfish exploited include those at several trophic levels, algal scrapers, suspension feeders, and carnivores (Wildish 1983:151). Other species from these communities may also have been exploited, which are not preserved in the archaeological record (for example, crabs, lobsters, squid and sea cucumbers). Thus, the two archaeological assemblages compared here may reflect similar subsistence orientations in dissimilar biogeographic contexts.

This contrast substantiates the hypothesis that the aboriginal inhabitants of the Northeast coast during the Woodland period were interested in general intertidal productivity in choosing settlement locations, and not in the productivity of particular invertebrate species (see Black [1983a:97-98, 1985:3] for a similar argument with respect to the Partridge Island site). This hypothesis runs counter to statements made by previous archaeological researchers in the Quoddy region (Sanger 1971:16; Davis 1978) whose observations were restricted to sites on the northern shores of Passamaquoddy Bay, where site contexts are more similar to that of the Wheeler's site than to that of the Weir site (see Logan et al [1983:120] for an illustration of substrate distribution in the Quoddy region).

However, the main thrust of my argument here has been to suggest that the Middle Woodland inhabitants of the Quoddy region intensively exploited intertidal resources, and thus, to counter interpretations like those of Snow (1980:49-50, 179) which downplay the importance of invertebrate resources in the prehistoric subsistence patterns of the coastal inhabitants of the Northeast.

There may be other significant contrasts between the Weir site and the Wheeler's site, but further excavation at the Weir site will be necessary in order to evaluate these. It would be desirable to know more about the seasonality of the Weir site, and also to know if there are features in the site which can be interpreted as large fire pits for smoking meat (see Barber 1982:18). Thus, it is not possible at this time to determine whether the seasonally specific, functionally specialized, shellfish processing model of shell midden accumulation which Barber (1982:98-99) has developed from his study of the Wheeler's site is fully applicable to the Weir site. For this reason, I would provisionally describe the subsistence strategy represented at the Weir site as one of intensive intertidal exploitation. Future shell midden analyses in the Quoddy region should address the question of how seasonally specific shellfishing was in the region, and whether there is evidence that shellfish, and other resources, were preserved for later consumption.

Figures

FIGURE 2-1 Map of the Quoddy region showing the location of the Bliss Islands.

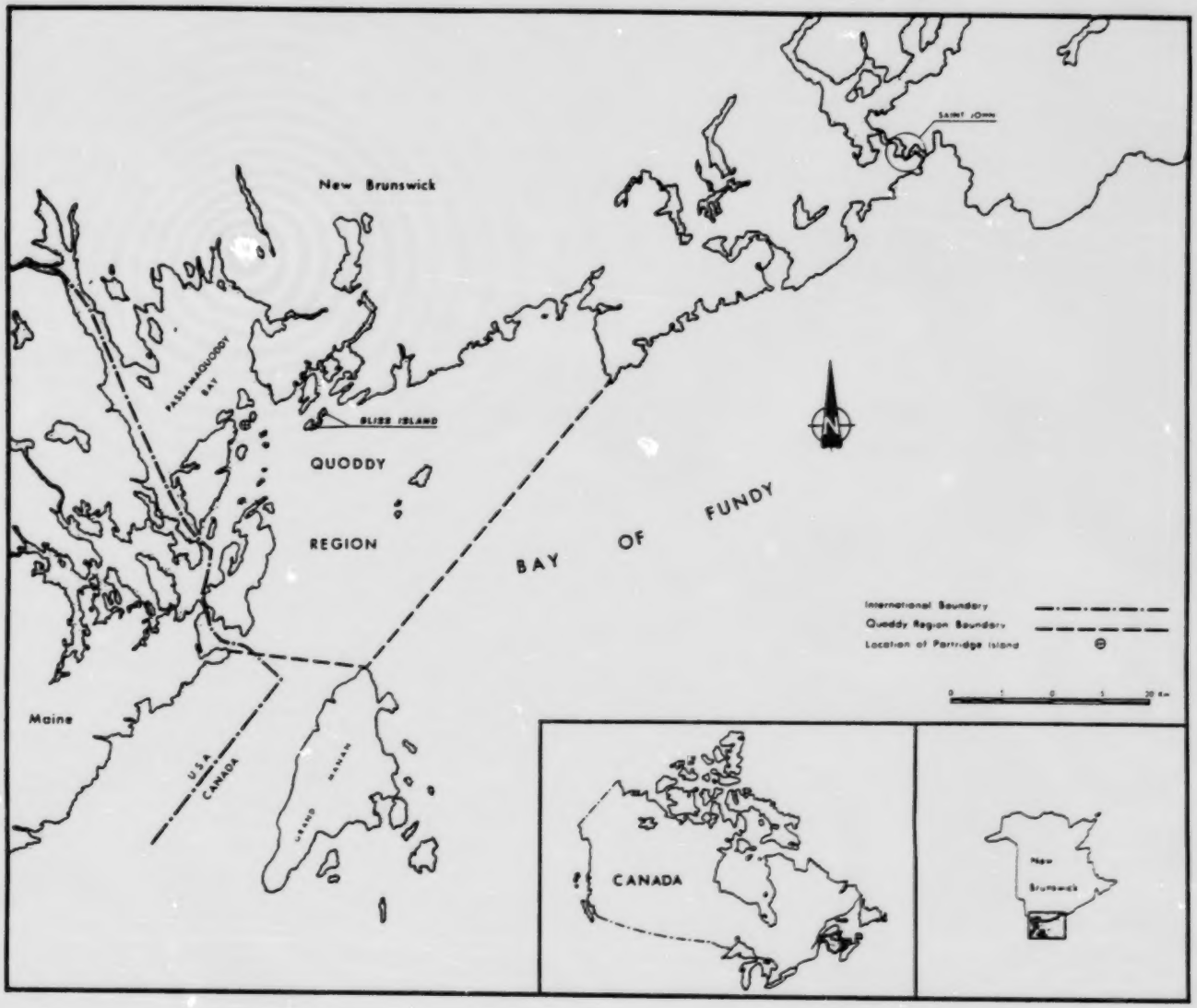

New Brunswick
SAINT JOHN
PASSAMAQUODDY BAY
BLISS ISLAND
QUODDY
REGION
BAY OF FUNDY
N
International Boundary
Quoddy Region Boundary
Location of Partridge Island
Maine
U.S.A.
CANADA
GRAND MANAN
CANADA
New Brunswick

FIGURE 2-2 Map of the Bliss Islands showing place names and areas mentioned in the text .

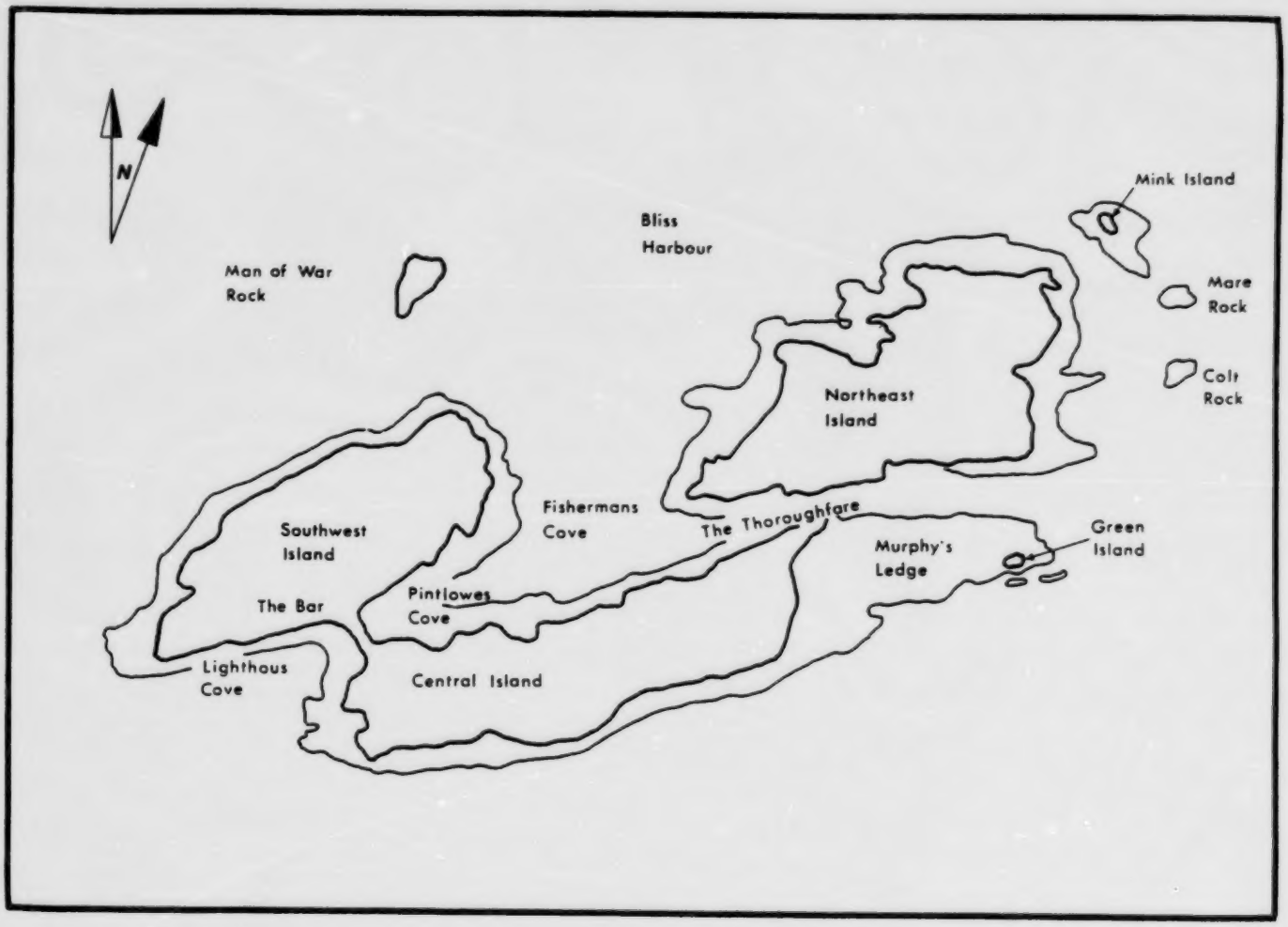

N
Mink Island
Bliss
Harbour
Man of War
Rock
Mare
Rock
Colt
Rock
Northeast
Island
Fishermans
Cove
The Thoroughfare
Southwest
Island
Green
Island
Murphy's
Ledge
Pintlowes
Cove
The Bar
Lighthous
Cove
Central Island

FIGURE 2-3 Map of the Weir site (BgDq6). The stippled area indicates the probable extent of the site; the inset map indicates the location of the site on the islands.

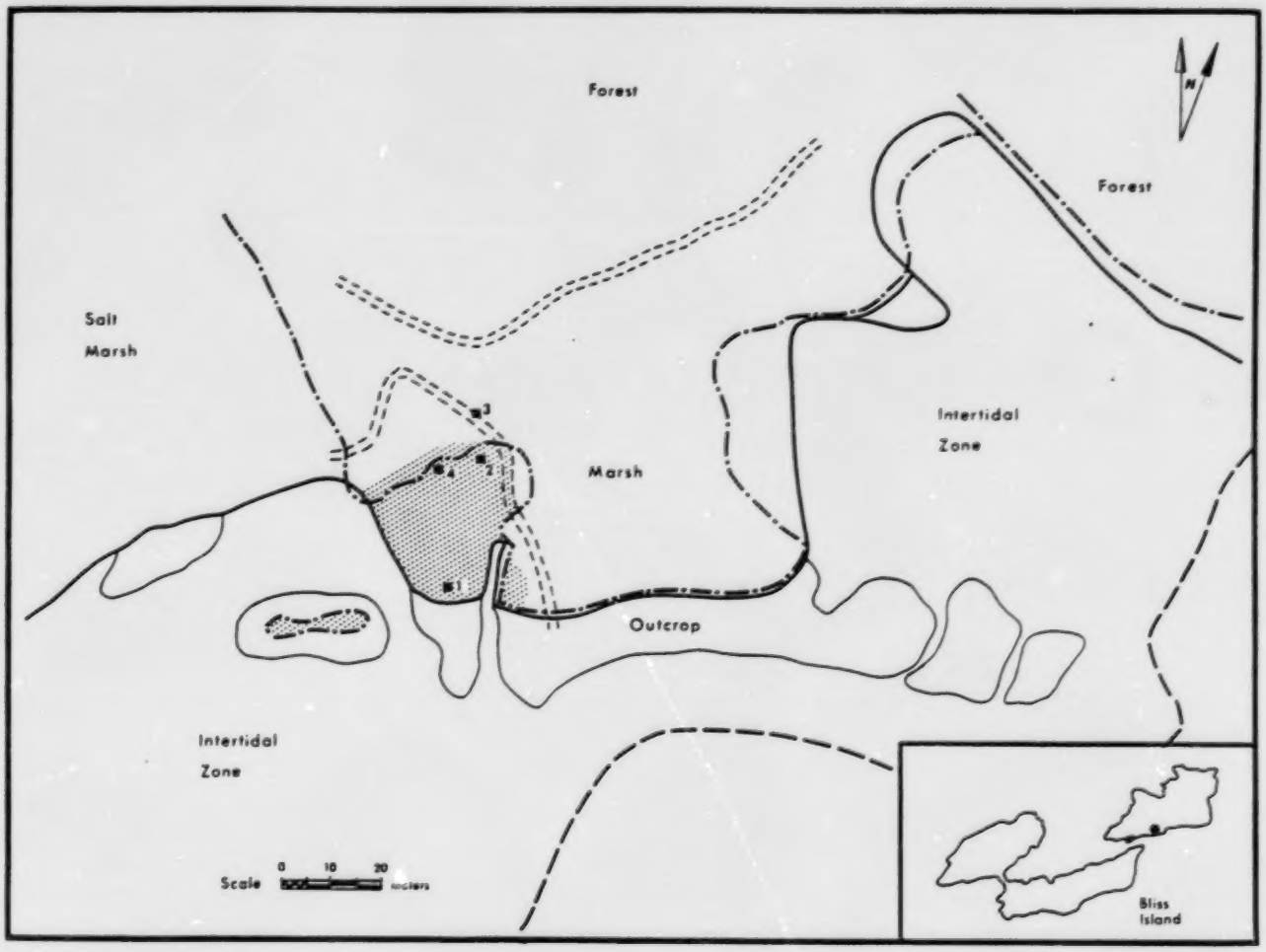
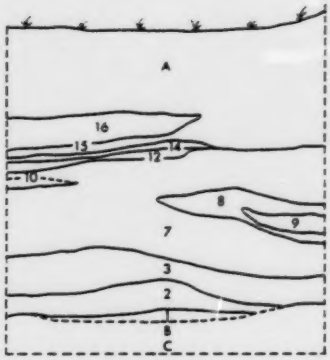
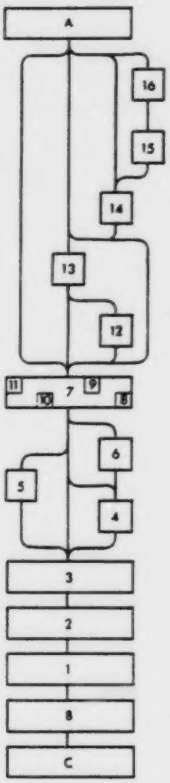

Forest
N
Forest
Salt
Marsh
Intertidal
Zone
Marsh
4
2
3
1
Outcrop
Intertidal
Zone
Scale
0
10
20
meters
Bliss
Island

FIGURE 2-4 Description of the stratification intersected by excavation unit 1.

SEQUENCE

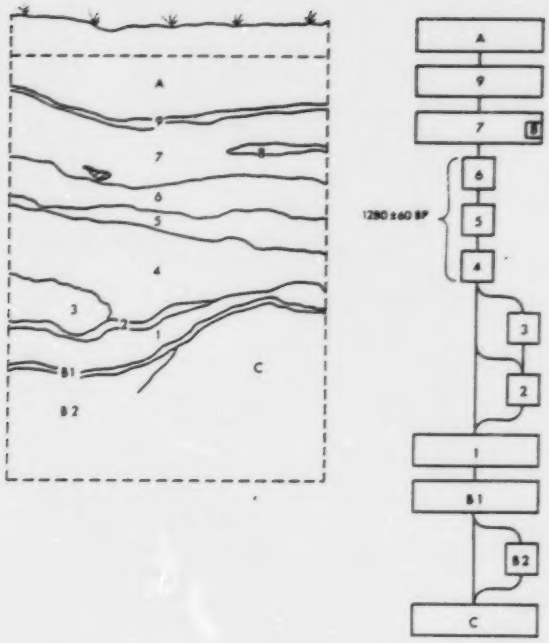




	DEPOSITS		INTERPRETATION
A/	dark yellow-red peat soil	▶	modern forest soil
16/	coarsely fragmented clam and mussel shell	▶	final cultural deposition shellfish harvesting and dumping
15/	thin black organic soil	▶	soil formation over the midden surface
14/	black soil mixed with shell		
13/	coarsely fragmented clam and mussel shell	▶	shellfish harvesting and dumping onto abandoned living floors
12/	mixture shell and cultural gravel		
11/	ash lenses	▶	living floors construction and occupation, trampling layers, sporadic shell deposition, burning
10/	gravel and shell		
9/	gravel and black soil lenses		
8/	gravel and brown soil lenses		
7/	cultural gravel with mixed soil and shell		
6/	coarsely fragmented shell	▶	shellfish harvesting and deposition
5/	finely fragmented shell		
4/	thin layer of black soil and gravel	▶	living floor construction and occupation
3/	coarsely fragmented and whole clam and mussel shell	▶	shellfish harvesting and deposition
2/	greasy black organic soil	▶	buried natural soil
1/	peat soil and clam shell	▶	initial cultural occupation
B/	mauve gravelly subsoil	▶	geological deposition, weathering, and soil formation
C/	conglomerate bedrock		

FIGURE 2-5 Description of the stratification intersected by excavation unit 4.

SEQUENCE



DEPOSITS	INTERPRETACION
A/ dark yellow-red peat soil	modern forest soil
9/ thin black organic soil; some shell and gravel	post-occupation soil development
8/ yellow ash and sea urchin shell	sea urchin cooking feature
7/ fragmented shell, black soil and gravel	shellfish harvesting and dumping trampling layers
6/ whole clam shell; sea urchin	shellfish harvesting and dumping
5/ compact fragmented shell; gravel	shellfish harvesting and dumping trumpling layers
4/ fragmented clam shell; large amounts of sea urchin shell	shellfish harvesting and dumping
3/ whole and fragmented clam and mussel shell	shellfish harvesting and dumping
2/ thin black organic soil; sea urchin shell	soil formation on midden surface
1/ whole clam shell; fragmented mussel	initial shellfish harvesting and dumping
B1/ thin black greasy layer	buried natural soil
B2/ mauve gravelly soil	geological deposition, weathering, soil formation
C/ conglomerate bedrock	

TABLE 2-1 Size data for the Weir site archaeological sample.

	Unit 1:	Unit 4:	Total:
Total excavated volume:	0.93	1.13	2.06
Site volume excavated:	0.58	0.86	1.44
Shell midden volume:	0.30	0.83	1.13
Living-floor volume:	0.28	0.03	0.31

*(all figures are in m^3)

TABLE 2-2 Quantitative analysis of the Weir site faunal sample.

Taxonomic Classification:	Amount Proportion Recovered:	Equivalent Meat Weight:	of Total:
INVERTEBRATES:			
Mollusks:			
Mya arenaria (clam)	314.83 kg	57.16 kg	30.3%
Modiolus modiolus (mussel)	175.41	20.74	11.0
Mytilus edulis (mussel)	30.08	2.20	01.2
P. magellanicus (scallop)	0.20	0.02	00.0
Nucella lapillus (whelk)	7.29	2.17	01.1
Acmaea testudinalis (limpet)	5.22	1.38	00.7
Buccinum undatum (whelk)	3.90	0.87	00.5
Echinoids:			
S. droebachiensis (urchin)	255.45	38.37	20.3
Arthropods:			
Balanus balanus (barnacle)	1.78	0.20	00.10
Subtotals:		123.11	65.20
VERTEBRATES:			
Fish:			
Gadidae (large codfish)	MNI=1	2.47	01.3
Gadidae (small codfish)	MNI=6	0.36	00.2
Clupeidae (herring)	MNI=5	0.25	00.1
Birds:			
Alcidae (large shorebird)	MNI=1	0.50	00.3
Mammals:			
Phoca vitulina (seal)	MNI=1	39.00	20.7
Odocoileus virginianus (deer)	MNI=1	23.15	12.3
Subtotals:		65.73	34.9
Totals:		188.84 kg	100.0%

TABLE 2-3 Niche width measurements comparison between the Weir site and the Wheeler's site.

	Weir	Wheeler's
Complete faunal sample (each species considered separately):	4.92	1.51*
Complete faunal sample (shellfish considered as a single category):	2.07	--
Seafood only (each species considered separately):	4.07	1.05*
Seafood only (shellfish considered as a single category):	1.64	--
Shellfish only (each species considered separately):	2.93	1.0004**

(*Barber 1982:93)
(**calculated from Barber 1982:86)

Explanation: The formula used is

$$\text{niche width} = 1/\sum_{i}^{n} (P_i)^2$$

(Barber 1982:93), where 'n' is the number of resources exploited, 'i' is a particular resource, and 'P_i' is the proportion of resource 'i' in the assemblage (as from Table 2-2).; ' ' is the mathematical symbol for summation. The formula produces numbers between 1 and 'n'; the lower the number, the more specialized the subsistence strategy. A perfect specialist gets all subsistence from a single resource; a perfect generalist exploits 'n' resources equally.

TABLE 2-4 Niche widths and variability in shellfishing at the Weir site.

Unit 4 layers: species:	Niche width:	Most frequent
#7	3.38	*M. arenaria*
#6	2.56	*M. arenaria*
#5	3.28	*M. modiolus*
#4	2.55	*S. droebachiensis*
#3	2.04	*M. arenaria*
#2	2.75	*S. droebachiensis*
#1	2.25	*M. arenaria*

PART II: Phase II Introduction

CHAPTER 3

Bliss Islands Archaeology Project, Phase II, Summary

by H.L. Hale, R.S. Finley, and D.W. Black

Essentially, our plan for the 1986 research was to follow up on the recommendations which were made based on the 1983 field work (see Chapter 1, this volume). Field work plans were outlined in Black (1985a). We proposed to conduct major excavations at both the Camp site and the Weir site, to completely excavate the remaining portions of the Ledge site, to test the small shell midden sites and the non-shell midden site, and to examine and shovel-test a number of shoreline and interior areas of the islands. At the Camp site, we planned to excavate two areas: 1) adjacent to 1983 test units 1 and 3; and 2) adjacent to 1983 test unit 4. At the Weir site we planned to expose a profile along the eroding southern edge of the site, and excavate as much as possible of the area immediately threatened by erosion. We predicted a sample size of 60-120 m^2 of excavated area, depending on weather conditions, crew size and the amount of cultural material recovered per unit area. At the analytical level, we planned to emphasize comparisons between the two excavated areas in the Camp site, comparisons between superimposed midden layers in the Weir site, and inter-site comparisons between all of the prehistoric sites on the islands.

The field work was conducted during June, July and August 1986. This field season was separated into two stages: 1) the field school stage (June 19-July 19), and 2) the post-field school stage (July 26-August 29). During the field school stage an average of 14 crew members were present on the islands; this group was divided into three crews: 1) a survey crew supervised by Scott Finley and composed of Scott and one field assistant (Finley 1986); 2) an excavation crew composed of five field assistants supervised by Louise Hale, working at the Camp site (Hale 1986); and 3) an excavation crew composed of five field assistants supervised by David Black (Black 1986), working at the Weir site. An additional four assistants, under the supervision of Dr. Michael Deal, operated a field/lab in Back Bay, where cataloguing and preliminary analyses of materials from the excavations were undertaken (Deal 1986).

During the week between the field school stage and the post-field school stage (July 20-25), the project was visited by Art Spiess and ten high school students and

teachers aboard the schooner Bowdoin (Plate 3-1). This group excavated at both the Camp and Weir sites for two days.

During the post-field school phase an average crew size of six was maintained on the islands. From July 26-August 12, this crew completed the excavation at the Camp site under the supervision of Louise Hale, and from August 13-29, completed the excavation at the Weir site under the supervision of David Black. During this stage one assistant conducted lab work for the project in Fredericton. Throughout the summer the excavation crews lived in rented cabins and a tent camp located around the Camp site (Frontpiece). The lab crew lived in rented accommodations at Waweig.

Surveying was conducted only during the field school stage. Judgmentally located 1 m^2 test units were excavated at the smaller sites: 1 at the Ledge site (BgDq5), 2 at the Lighthouse Cove site (BgDr60), 2 at the White Water site (BgDr61), 2 at the Pintlowes Cove site (BgDr62), and 3 at the Northeast Point site (BgDq7). Shovel-tests were used to determine the limits of these sites. Matrix samples were taken to determine the contents of the sites quantitatively.

In addition, the transects shown on Figure 3-1 were intensively examined and/or shovel-tested. Shovel-tests were excavated every 25 meters. No previously unrecorded archaeological sites were discovered during the surveying. The survey crew also shovel-tested in the vicinity of the Camp and Weir sites in order to determine the limits of those sites.

At the Camp site (BgDq4) an area 5 m X 5 m was gridded into 25 1 m^2 excavation units located immediately north of 1983 test units 1 and 3 (Figure 3-2). Later this grid was extended to include 3 1 m^2 units adjacent to the 1983 tests and the 1986 grid. The grid and alpha-numeric system used to designate excavation units at the Camp site are shown in Figure 3-3.

This grid was completely excavated. No other area of the Camp site was excavated in 1986. The sample size for the site is, thus:

1983: 4 m^2
986: 28 m^2

Total: 32 m^2

Each 1 m^2 unit was excavated as a separate entity, by natural/cultural layers observed by the excavators. All of the material removed was screened through 6 mm steel mesh. All lithic, organic, metal, glass and ceramic artifacts, lithic debitage, faunal bones and unusual shells were saved. Plate 3-2 shows the Camp site excavation in progress.

The topography of the site surface and the boundaries of each layer excavated in each unit were mapped using an engineer's transit. The topography of the site is tied into the local marine chart datum.

At the Weir site (BgDq6) an area 6 m X 8 m was gridded into 1 m^2 excavation units immediately north of the eroding southern edge of the site (Figure 3-4). This grid was later extended to include 8 more 1 m^2 units immediately west of the origin was not possible to excavate all of the area gridded. Figure 3-5 shows a plan of the Weir site grid, indicating the units which were actually excavated in 1986. A total of 15 complete 1 m^2 units and 10 partial 1 m^2 units were excavated; these, coupled with the two complete 1 m^2 units excavated in 1983, produce a total sample size of 27 m^2 for this site.

Some of the partial units which contained mainly disturbed material were shovelled and screened; Figure 3-5 indicates the shovelled units. All of the other units were excavated by trowel as separate entities using natural/cultural layers observed by the excavators as vertical provenience units. All of the material removed, whether shovelled or trowelled, and whether disturbed or intact, was screened through 6 mm steel mesh. All lithic organic and ceramic artifacts, lithic debitage, faunal bones and unusual shells were saved. Plate 3-3 shows the Weir site excavation in progress.

Mapping procedures were conducted in the same manner as at the Camp site and the topography tied into the marine chart datum. However, because of the well-defined stratification in the Weir site, separate depth measurements on artifacts were considered unnecessary.

For each layer in each excavation unit in both sites, a layer (level) form, a layer plan, and a matrix description form were completed. Examples of these forms are shown in Figures 3-6, 3-7 and 3-8. Materials from each layer were bagged separately. All exposed profiles were drawn at 1:10 scale. All of these profiles and most of the layer surfaces were photographed in both black and white (2.25"X2.25" prints) and colour (35mm slides). In addition to the usual photographic techniques, the Weir site stratigraphy was also photographed using a 4"X 5") format field camera. Also, about 45 minutes of super-8 movie film was shot during the Weir site excavations, and will be edited to produce a motion picture record of that part of the project.

Sampling columns (20 cm X 20 cm) were excavated at the positions shown in Figures 3-3 and 3-5. In these columns 1 litre matrix samples were taken from each layer defined in the corresponding profile drawing. These samples will be used to determine the contents of the sites and layers quantitatively, to assist in stratigraphic interpretations, and to detect the presence of very small animal bones, lithic microdebitage and carbonized plant remains. Duplicates of some of

these samples were processed in the field using a flotation technique to determine if carbonized plant remains and small land snails are present in the sites.

The Northeast Point site (BgDq7) is located at the northern tip of the Northeast Island (Figure 3-9), away from the two clusters of shell midden sites. In 1981 a projectile point and two pieces of debitage were found on the beach there. No testing was done at the site in 1983. During the Phase II research three 1 m^2 excavation units and several shovel tests were excavated at the site. The site proved to consist of a thin gravel living-floor immediately above the bedrock and covered by a deep peat deposit. About 150 stone tools and pieces of lithic debitage were recovered from the small area excavated. This site is unusual in that it is the only known prehistoric site on the Bliss Islands which apparently does not contain any marine shell deposits.

These three sites, Camp, Weir, and Northeast Point will be described at greater length in subsequent publications. The other 4 sites, the small shell middens, are described in Part III of the present volume.

Some ecological sampling was undertaken during the project. In particular, specimens of horse mussels were obtained and measured to produce a meat:shell ratio for this species, and soft-shelled clam and sea urchin specimens were obtained to serve as modern analogues for seasonality analyses involving these species. These specimens will become part of a reference collection being prepared by one of the authors (DWB) to assist in identifying shellfish from archaeological sites in the region.

Shovel tests were conducted in inter-tidal peat deposits located below the rock outcrop on which the Weir site is located. These tests revealed substantial peat deposits, up to 90 cm in depth, which must have formed during a time when sea level was substantially lower than it is at present. A sample of wood from a tree root preserved deep within this peat deposit was collected with the aim of dating the peat formation.

In total, field work was conducted on 64 days during the three months of the project, and a total of 660 person/days of effort, much of it contributed by unpaid students and volunteers, was invested. We estimate that at least one-fifth of this effort was expended on the considerable logistical demands of maintaining a relatively large crew in a relatively isolated place. Another one-fifth of this effort was invested in lab work concurrent with the field work. Thus, the excavations themselves absorbed about 380 person/days of effort. A total area of 63 m^2 was excavated, and approximately 18,000 specimens and 170 column samples were collected.

At the end of the project the excavated area at the Camp site was refilled with screened backdirt and the sods were replaced over the area. Our previous experience suggests that within 2-3 years the surface of the site will have returned to its

natural state. Similarly, the limited excavations at the smaller sites were back-filled, and will probably rapidly return to their natural states.

The Weir site, on the other hand, presented a more difficult problem at the end of the project because of the threat of erosion. The grid stakes defining the unexcavated 1 m^2 units were left in place to facilitate any subsequent excavation of the site. In an effort to stabilize the front of the site, the profile was covered by heavy gauge sheet plastic held in place by rocks and stakes. Holes were punched in the plastic to allow groundwater drainage through it. The profile and plastic were then covered with screened backdirt to form approximately a 50^o slope. The slope was then covered with peat and bramble roots in an effort to encourage early re-vegetation of the front of the site. We estimate that, in the absence of severe winter storms, it will be at least 2-3 years before intact portions of the site begin to erode significantly once more.

Obviously, our plans for the 1986 field work were only partially accomplished: we were able to excavate only to the low end of our estimated sample size, the shovel-testing and surveying procedures were only partially completed, and only one area, rather than two, was excavated at the Camp site. There are a number of reasons for these short-falls in accomplishment: our plans were probably unrealistically ambitious in the first place; our experienced personnel spent more time teaching, training and supervising than we expected; all excavations proceeded more slowly than anticipated because all of the sites yielded a higher density of cultural material than anticipated; and excavation at the Weir site proceeded slowly because the stratification at that site is more complex than anticipated. However, the quantity and quality of the material recovered and the notes taken during the project more than compensate for the short-fall in area excavated.

The main revision to the proposed analyses will be that intra-site comparisons at the Camp site will be made between superimposed natural/cultural layers as at the Weir site. These comparisons should provide useful information with which to address the current controversy concerning the identification, integrity and interpretability of stratification observed in Northeastern shell middens (see Bishop and Black in press; Brennan 1977; Sanger 1981, 1985b; Spiess in press).

FIGURE 3-1 Transects surveyed and shovel-tested during Phase II.

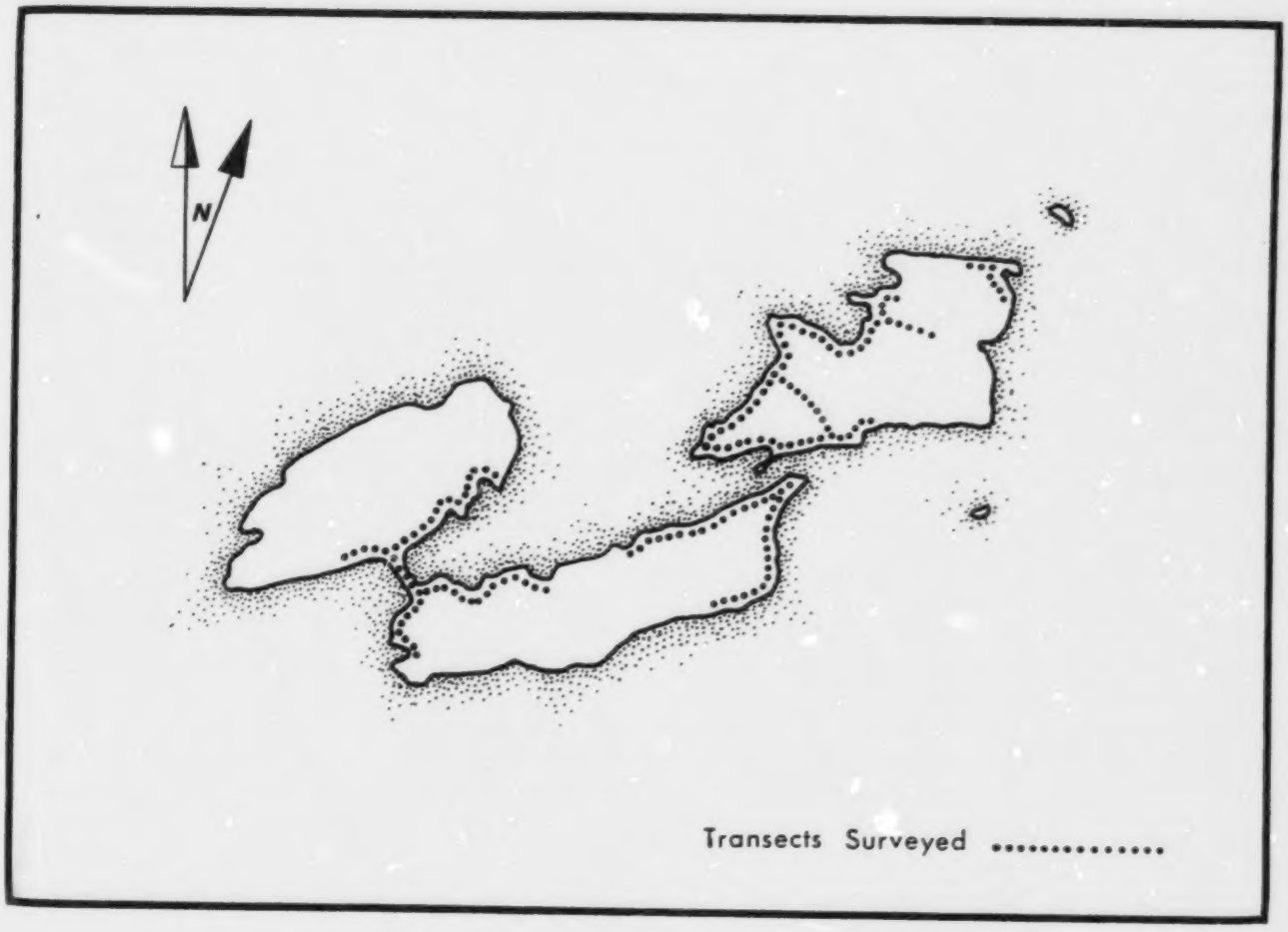

N
Transects Surveyed

FIGURE 3-2 Map of the Camp site (BgDq4). See Appendix Key 1 for key.

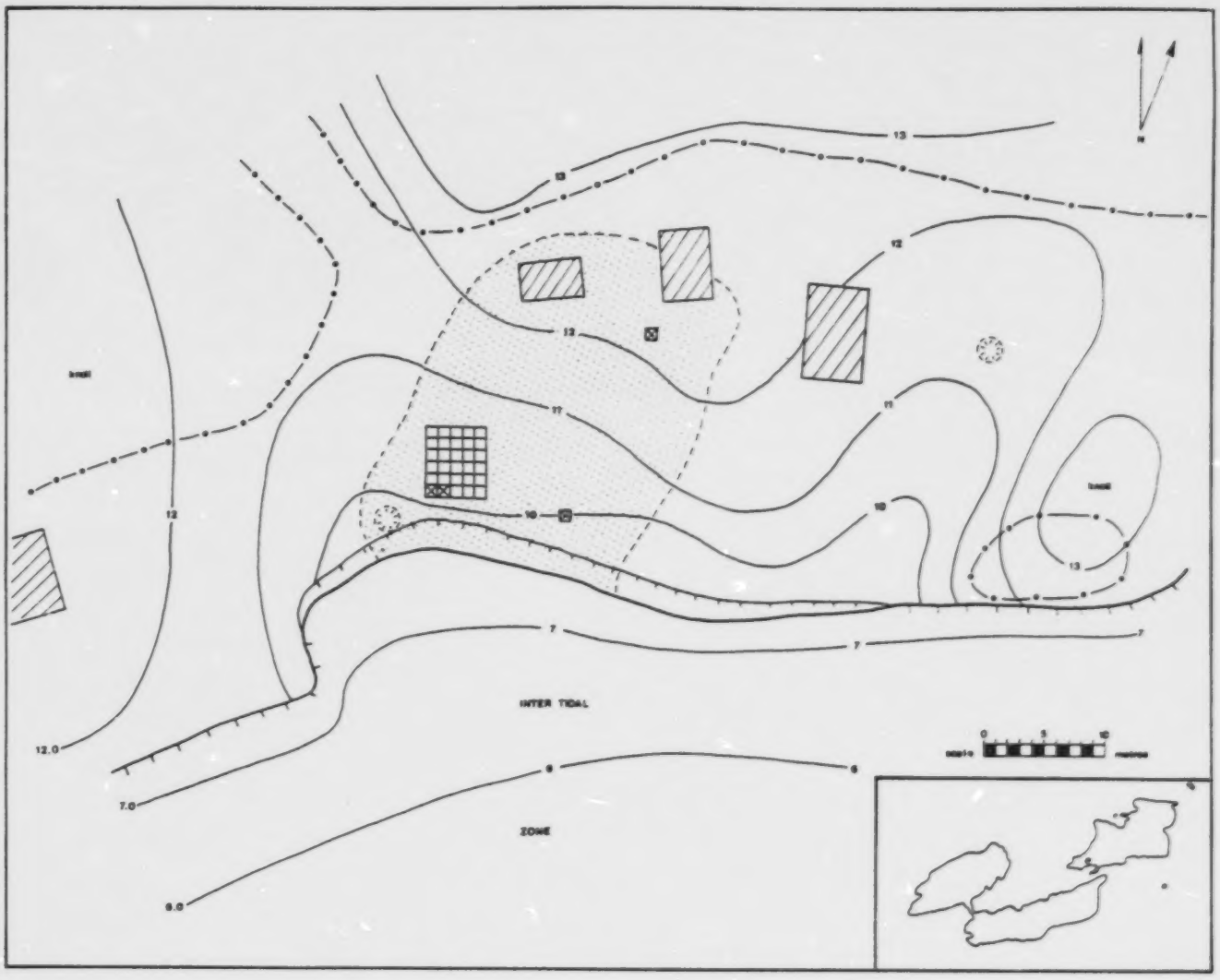
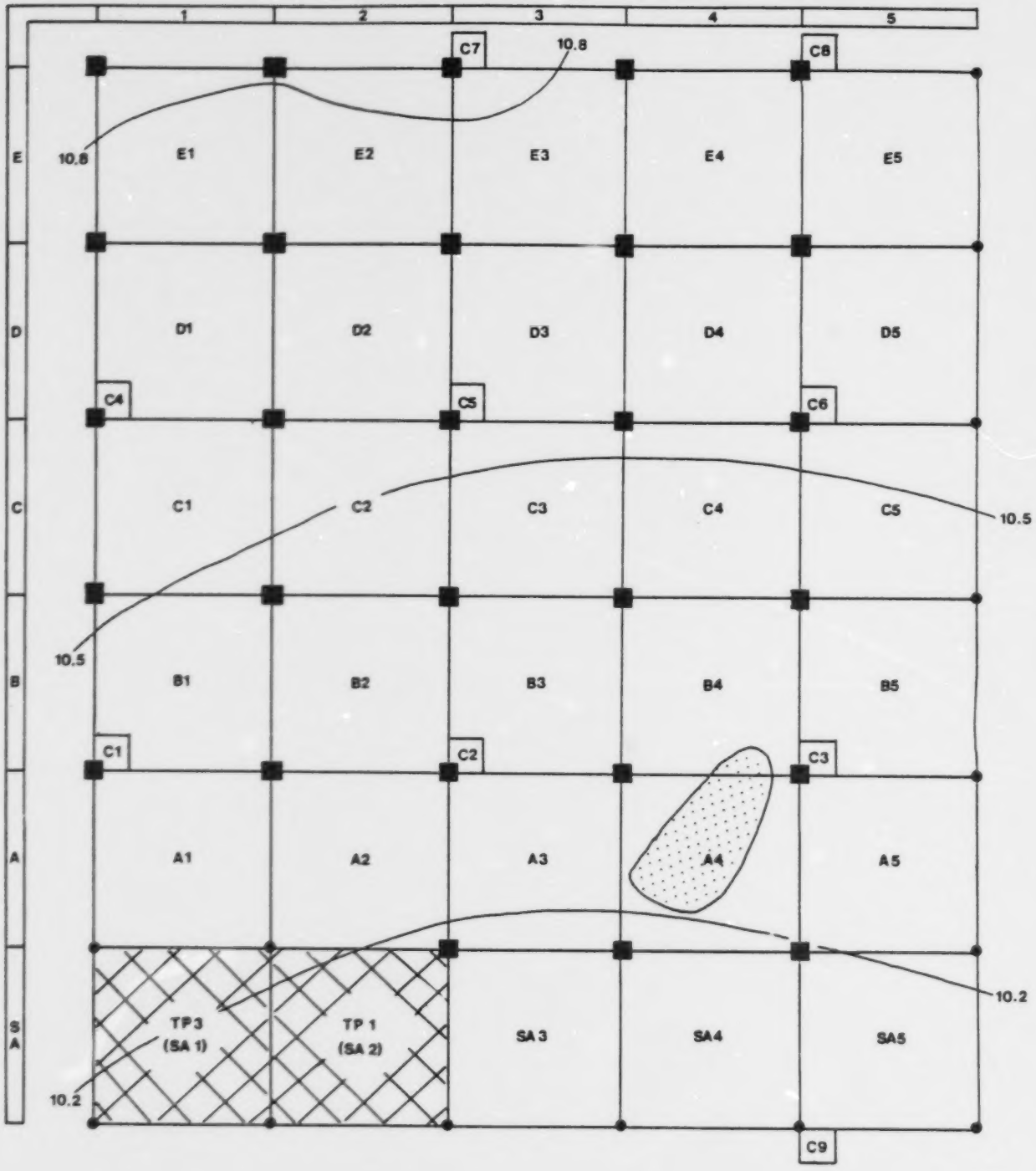

13
13
12
13
11
11
10
10
13
12
7
7
7
INTER TIDAL
ZONE
12.0
7.0
6.0
6
N

FIGURE 3-3 Plan of the excavation at the Camp site. See Appendix Key 2 for key.



CAMP SITE: MAIN EXCAVATION BLOCK PROVENIENCE UNITS

scale 0 1 metres

contour interval 0.3 m

N

FIGURE 3-4 Map of the Weir site (BgDq6). See Appendix Key 1 for key.

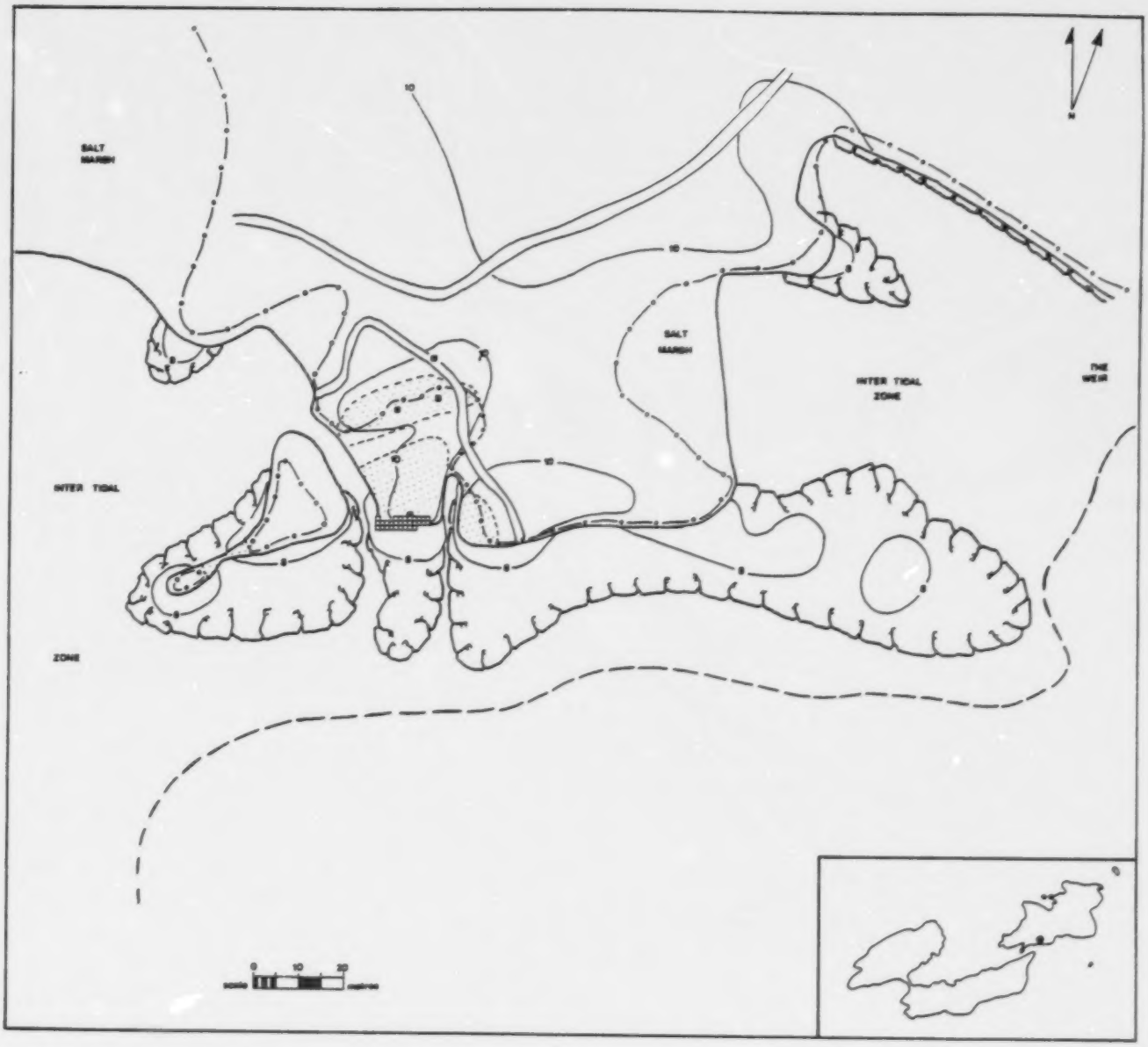

SALT MARSH
10
SALT MARSH
INTER TIDAL ZONE
INTER TIDAL
ZONE
0
10
20

FIGURE 3-5 Plan of the excavation at the Weir site.
See Appendix Key 2 for key.

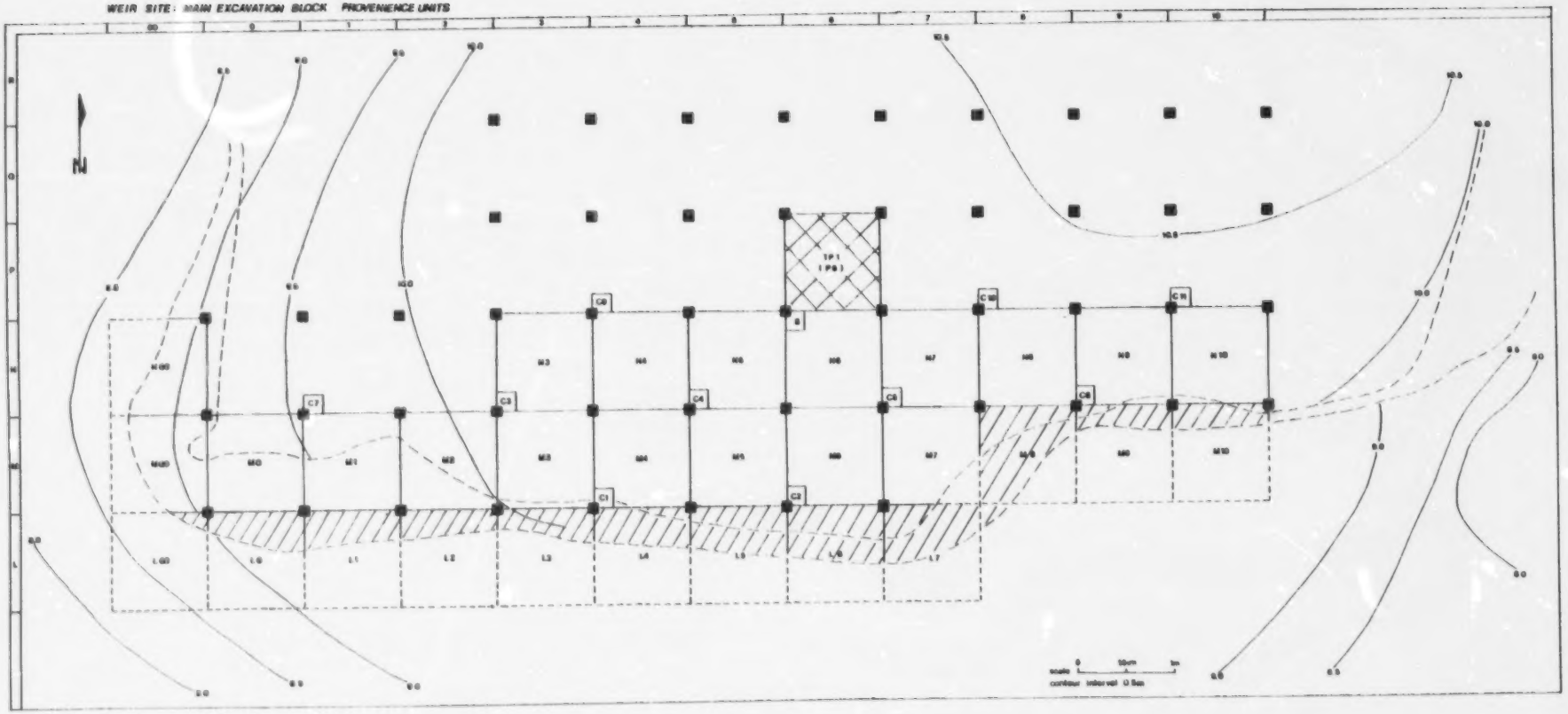

WEIR SITE : MAIN EXCAVATION BLOCK PROVENIENCE UNITS
N
TP 1
(Pit)
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
scale
contour interval 0.5m

FIGURE 3-6 Sample layer excavation form.

ARCHAEOLOGICAL LEVEL RECORD
ENREGISTREMENT DU NIVEAU ARCHEOLOGIQUE

NEW BRUNSWICK
NOUVEAU-BRUNSWICK

42-1083 (6/75)

Site No. / N° du site: BgDq6

Excavation Unit / Unité de fouille: N3

Level Co-ordinates: / Coordonnées du niveau:

Level No. / N° du niveau: 14

Horizontal

Vertical

NW	9.17	to/à	9.14	
NE	9.19	to/à	9.19	
SW	9.22	to/à	9.12	
SE	9.14	to/à	9.14	
C	9.14	-	9.13	

Level Type (natural, cultural, arbitrary) / Genre de niveau (naturel, culturel, arbitraire)

Excavation Method / Méthode de fouille: trowel and screen

Features / Traits spéciaux:

Photographs: / Photographies:
Black and white / Noir et blanc: 86A39 Exp. No. / N° d'affleurement: 7, 8, 11, 12
Colour / Couleurs: 86C39 Exp. No. / N° d'affleurement: 1, 2

Artifact / Specimen No. / Outil / N° de spécimen: Projectile Point Projectile Point Base

Dug By / Exhumé par: PA / SG Date: 18/08/86 Bag / Sac: #116

NOTES:

Finely fragmented clam shell in a black greasy organic soil matrix.
Thin, distinct layer
Charcoal and firecracked rock through out

Expanding stemmed projectile point - SW quadrant
Projectile point base - SE quadrant

Whale vertebra - NW quadrant

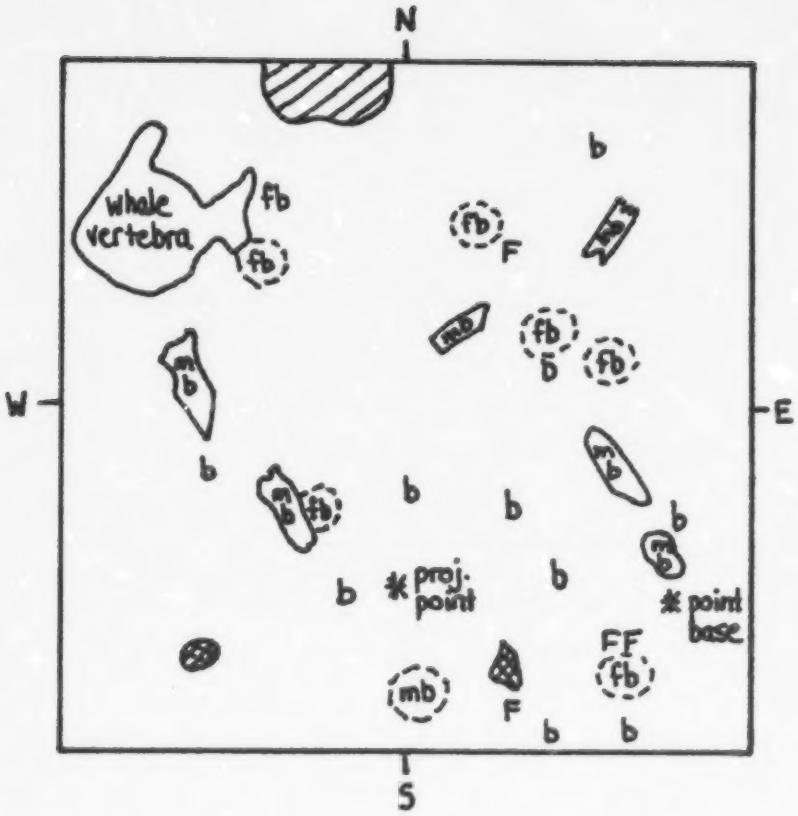
Mammal and fish bone through out, but especially on surface of layer.

FIGURE 3-7 Sample unit/layer plan.

Provenience : Unit N3
Layer 14

18/08/86

PA/SG



Key:

* lithic artifact
F flake
b bone
fb fish bone
mb mammal bone
bone concentration
rock
fire cracked rock

Scale : 1mm = 1cm

FIGURE 3-8 Sample matrix description form.

MATRIX DESCRIPTION FORM
==========

Site: BgDq 6

Excavation Unit: N3

Layer: 14

Structural Components:		Fines % 30	Mineral % 10	Shell % 60
Colors:		black, grey	red, green	white, stained
Size:		very fine	fine-med. gravel	fragmented
Shape:		-	rounded; firecracked	-
Boundaries:	Upper	distinct		
	Lower	distinct		
Fabric:	Crossection	none observed		
	Plan	none observed		
Shell:	Distribution	dispersed		
	Species	soft-shelled clam, horse mussel, waved whelk		
Bone:	Distribution	mammal-dispersed; fish-clustered		
	Classes/Species	large mammals - eg. whale, deer large fish - eg. cod		

Notes: black, humic, greasy soil matrix mixed with finely fragmented shell, bone, and cultural gravel.

Excavator PA/SG Date 18/08/86

FIGURE 3-9 Map of the Northeast Point site (BgDq7).
See Appendix Key 3 for key.

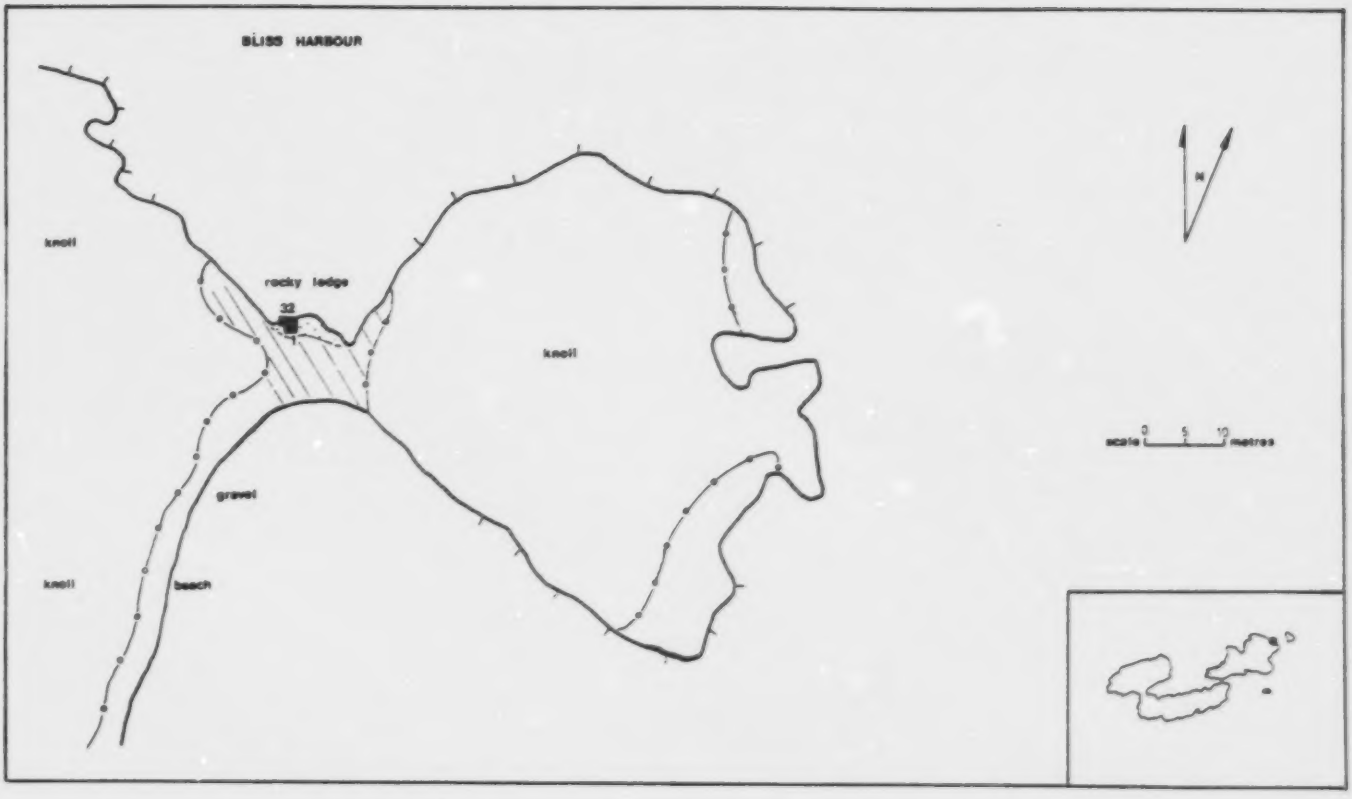

BLISS HARBOUR
knoll
rocky ledge
32
knoll
gravel
knoll
beach
N
scale 0 5 10 metres

PLATE 3-1 The schooner Bowdoin in Fishermans Cove.

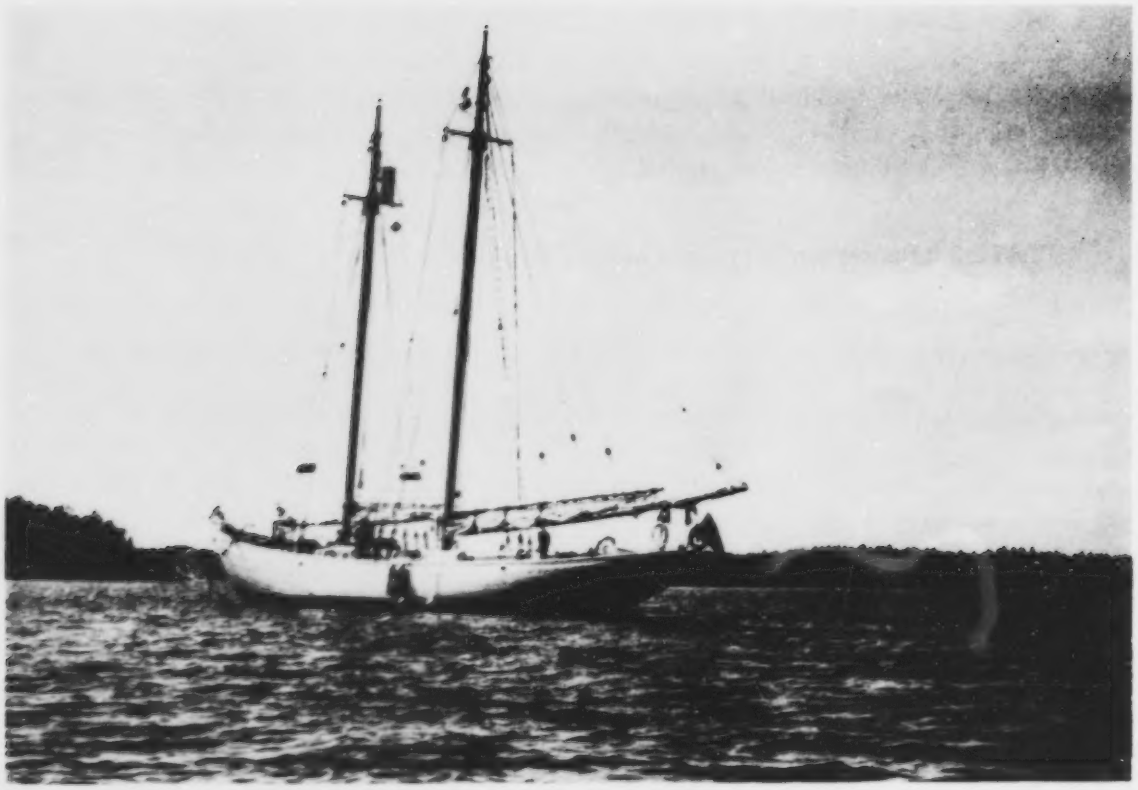


PLATE 3-2 Excavation in progress at the Camp site.

PLATE 3-3 Excavation in progress at the Weir site.

CHAPTER 4

Bliss Islands:
A Preliminary Chronology of Prehistoric and Historic Occupations

by David W. Black

The Bliss Islands are named after Samuel Bliss, a Loyalist emigrant who wintered on the islands in 1783. Some older maps and marine charts show the name as Bliss's Island, and some people in Charlotte County refer to the islands by that name. However, on the more recent maps the name has been changed to Bliss Islands.

The following time chart was compiled from information provided by Cal Craig, Marc Lavoie, Chris Turnbull and Beta Analytic Laboratories. In the prehistoric section of the chart BP indicates the number of radiocarbon years before 1950. The radiocarbon dates have not been calibrated to calender years. Sample numbers for the radiocarbon numbers in the chart are as follows B-8196, B-8197, B-8198, B-8199, B-21138, B-21139, B-21140, B-21141, B-23159 and B-23160. The dating for the late prehistoric period was suggested by information on tobacco pipe chronology (Walker 1977).

Time Period:	Culture:	Absolute Dates:	Events:
Historic			
present			-see distribution of modern settlements in Black (1985b).
20th century	historic	AD 1900-1987	-occupations around Fishermans and Pintlowes Coves.
19th century	historic AD	1800-1899	-occupation at the Camp site and around Pintlowes and Lighthouse Coves.
18th century	Loyalist	AD 17831799	-occupations around Pintlowes and Lighthouse AD 1783/84 10 men from the 84th Royal Highland Emigrants spent the winter on the Bliss Islands (Craig n.d.).
18th century	Pre-Loyalist	AD 1604-1783 ?	?

Time Period:	Culture:	Absolute Dates:	Events:
Prehistoric			
800-400 BP	late prehistoric	300±50 BP 380±50 BP	-occupation of the Camp site and the Ledge site.
1200-800 BP	Late Woodland	1280±60 BP 1230±70 BP 1500±70 BP	-occupation of the Camp site, the Weir site, the Northeast Point site, the Pintlowes Cove site, and the Lighthouse Cove site.
2000-1200 BP	Middle Woodland	1650±70 BP 1800±90 BP	-occupation of the Weir site and the Camp site.
2500-2000 BP	Early Woodland	2270±70 BP 2360±80 BP	-occupation at the Weir site; possible occupation at the Camp site.
pre-2500 BP	Archaic?		-possible occupation at the Weir site.

CHAPTER 5

The Slate Ulu from Whitehorse Island

by C.J. Turnbull and D.W. Black

During the Bliss Islands project, while Scott Finley and Jim MacPhee were working at the Northeast Point site (BgDq7), they were contacted by Mr. Doug Cook of Back Bay, New Brunswick, who showed them an unusual artifact which his father, Mr. Carroll Cook, had found several years earlier while dragging for scallops (Finley 1986). The artifact was brought up from the sea bottom offshore from White Horse Island (Figure 1-1). The Cooks kindly allowed the project to borrow this artifact for a day in order to study and photograph it. The Bliss Islands Archaeology Project has concentrated on studying Indian sites and cultures of the past 2500 years, however, the artifact found by Mr. Cook is evidence of a much earlier group of Indians who lived along the shores of the Maritime Provinces.

Thousands of years ago the Bay of Fundy was much warmer than it is today; in fact, the Indian people of that distant time period often hunted swordfish. One of the tools these people used was a ground stone knife, shaped very much like the Eskimo semi-lunar knife known as the 'ulu'. It is such a ground stone knife which Mr. Cook brought up from the bottom of the sea (Plates 5-1 and 5-2).

This stone knife is shaped like a large semi-circle; the curved edge has been sharpened as a blade, while the straight edge has a well-defined grip or handle. It has been carefully made from a piece of banded metamorphosed slate by grinding and polishing the stone. Similar finds elsewhere suggest that this artifact may have been made as early as 6000 years ago. At that time there were Indian groups living on the coasts of New Brunswick and Maine who fished for swordfish and cod; the remains of these fish are often found in the coastal camp sites of these people. Groups with similar cultures lived all around the Gulf of St. Lawrence and as far north as Labrador.

The ulu found by Mr. Cook may have fallen overboard from an Indian canoe during a fishing expedition, or, as one archaeologist suggests, may have been lost on the sea ice, as there was probably more winter ice coverage in the Bay of Fundy at that time (perhaps like the Gulf of St. Lawrence today). Alternatively, the knife may have been raised from what was once dry land, since the water level of the Bay of Fundy has risen substantially during the past 5000 years.

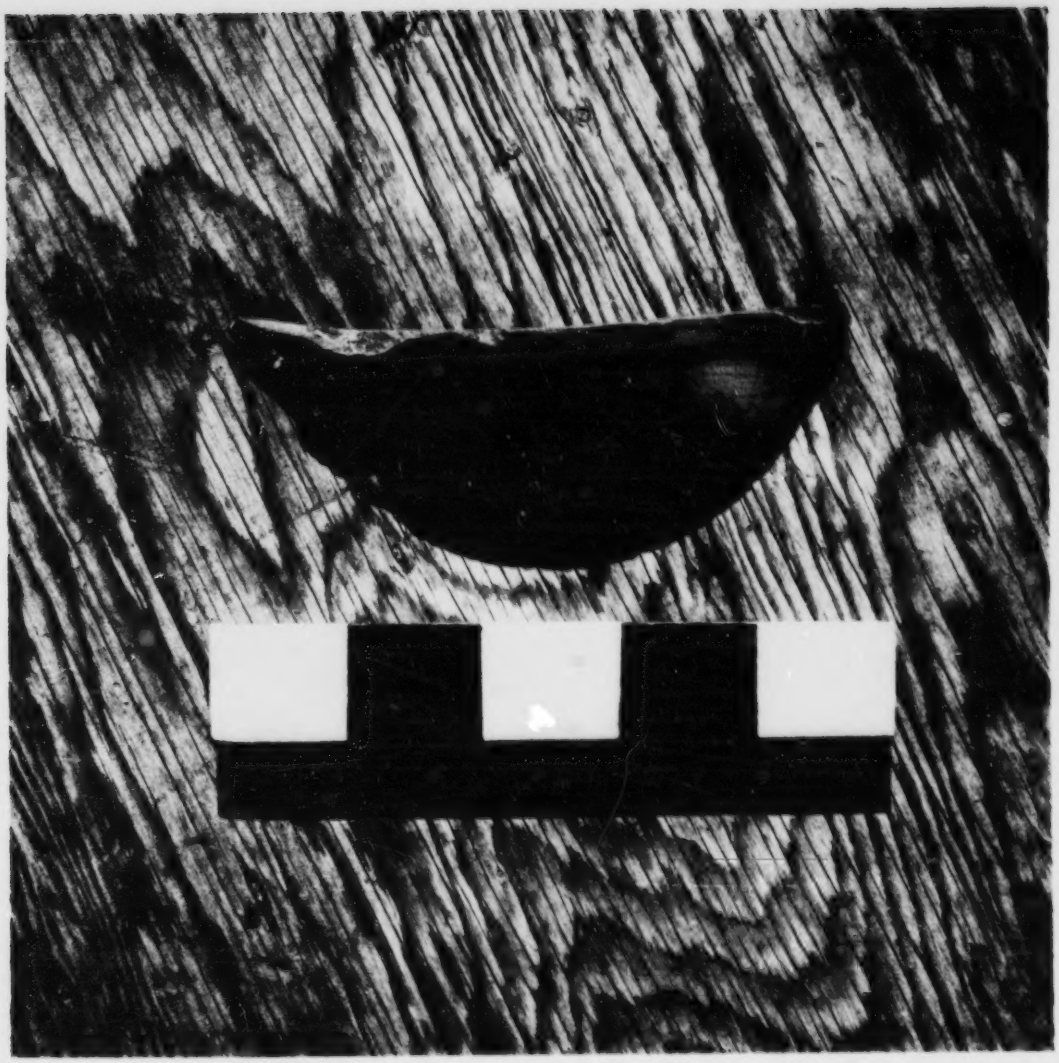
There are at least five other ulus which have been recovered from the sea bottom in the Maritimes--two from Charlotte County, two from Nova Scotia off Yarmouth and Digby, and one from Northumberland Strait between Prince Edward Island and New Brunswick (Keenlyside 1984). A slate ulu has also been found by a scallop dragger in Maine, offshore from the mouth of the Penobscot River (Rice 1979). The fact that other artifacts were also recovered with this ulu supports the idea that the ulus from the Maritimes come from prehistoric sites drowned by rising sea levels.

Slate ulus have also been found at inland sites (Snow 1980; Turnbaugh 1977). It is from the contexts of these inland finds that we are able to estimate the ages of the ones recovered from offshore.

FIGURES

PLATE 5-1 Archaeologist Louise Hale holds the Indian stone knife found by a scallop dragger off White Horse Island, Charlotte County, N.B. The knife was made by an early Indian culture about 6000 years ago.

PLATE 5-2 A close-up of the slate knife from White Horse Island. The artifact was made from a piece of banded slate by grinding and polishing, and has a well defined grip opposite the sharpened edge.



PART III: Site Reports

CHAPTER 6

The Ledge Site: Archaeology without Artifacts

by D.W. Black

The Ledge site (BgDq5) is located at the northeastern tip of the Central island on the high water line adjacent to Murphy's Ledge (Plate 6-1). At the time of discovery in 1981 it consisted of two isolated patches of shallow shell midden deposits. Both of these have now been tested, area A in 1983 during Phase I of the Bliss Islands project, and area B in 1986 during Phase II of the project. Testing and erosion have almost completely removed the remaining portions of the site. The site and excavation areas are shown in Figure 6-1. The total area of the site was much less than I estimated in 1983, being about 5 m^2. Additional locational information and the results of the 1983 fieldwork have been reported previously (Black 1985:39-41). This chapter briefly summarizes the 1983 research, reports the 1986 testing, and presents several conclusions about the site.

1983 Research

A 1 m^2 test unit was excavated in Area A. The stratification of this area is shown in Figure 6-2. Two shell layers partially separated by a living-floor deposit are sandwiched between natural peat soil layers. An analysis of the matrix from layers 3 and 4 is presented in Figure 6-3. Faunal remains in layer 2 consisted of 100% sea urchin shell; layer 1 faunal remains were circa 40% horse mussel and 60% soft-shelled clam. No vertebrate faunal remains were found in the site in 1983. (The matrix sample analyzed in Figure 6-3 was collected in 1986, and the single fish bone found in it is the only vertebrate faunal remain recovered from the site.) In addition, neither the test unit nor the erosional surfaces around the site yielded any artifacts.

The living-floor (layer 2) in area A is similar in structure to those excavated in other Quoddy region prehistoric sites, but is unusual in that only sea urchin shells, charcoal and fire-cracked rocks are present on the floor. A sample of wood charcoal from the surface of the floor has been dated to 380±50 BP (Beta-8197). I concluded (Black 1985b:41) that although the site is unusual, it is almost certainly an aboriginal site dating to the late prehistoric period.

1986 Research

A 1 m^2 test unit was excavated in area B after intact midden deposits were discovered during shovel testing of the high water line in this area. The stratification of area B is illustrated schematically in Figure 6-4, and shown in Plate 6-2. This stratification is similar to area A with two exceptions: i) no living-floor separates the shell layers in this area; and ii) layer B1, which represents a beach deposit resulting from periodic flooding of the site at high water levels, did not occur in area A. Several pieces of plastic, a shard of bottle glass and a cinder have been incorporated into the surface layers of the site during this flooding. The material from this test unit was screened through 5 mm mesh in the field. No prehistoric artifacts or vertebrate faunal remains were recovered. Several pieces of possibly fire-cracked rocks were noted. An analysis of the matrix from layer 2 in area B is presented in Figure 6-5. In addition to the shellfish listed, northern whelks were also noted during the excavation.

During the 1986 fieldwork, the erosional surfaces and beaches around the site were again examined. No artifacts were found and no indications of cultural activity were observed beyond the limits of the shell deposits.

Discussion and Conclusions

The Ledge site has been interpreted as a late prehistoric period aboriginal site in spite of the absence of diagnostic artifacts for the following reasons:
i). it contains a wide range of shellfish species;
ii). it is internally stratified;
iii). it contains pieces of fire-cracked rocks;
iv). it contains a living-floor deposit similar to those in definite prehistoric sites;
v). it occupies the same relationship to natural soil horizons as other late prehistoric occupations on the islands; and
vi). the radiocarbon date from the site is within the range expectable from a protohistoric occupation.

This interpretation is reinforced by the discovery of a small fish vertebra in the area A matrix sample. The differences in context between the two areas of the site suggest different occupation episodes, but the similar stratification in the two areas suggests that these episodes were probably close together in time. There are two possible functional interpretations of the site:
i) that it is a remnant of a larger habitation site most of which has been eroded during the formation of Murphy's Ledge; or
ii) that it is a specialized shellfish processing and harvesting site which functioned as a satellite of one of the late prehistoric habitation sites (either the Weir site or the Camp site).

I favour the latter explanation for two reasons:
i) it partially accounts for the absence of artifacts at the site; and
ii) this explanation is at least partially testable through further dating and seasonality analyses.

Beyond its contribution to our knowledge of the prehistory of the Bliss Islands, the Ledge site is important for several reasons. First, it suggests that prehistoric shell midden sites exist in the Quoddy region which contain few or no faunal remains beyond the marine shell itself and no formal artifacts. While uninformative with respect to cultural history, such sites may, none-the-less, yield important information about prehistoric subsistence and settlement patterns. Erosion, not lack of artifacts, is the real enemy of finding and understanding such sites.

Second, with respect to the current controversy regarding stratigraphic integrity of Northeastern shell middens, the Ledge site demonstrates that cultural stratification in even relatively shallow shell middens may be preserved in some cases in spite of the growth of a substantial forest on the site surface, invasion of the layers above and below the site by fir and spruce roots, and periodic inundation by high water levels. This examination of the Ledge site leads me to re-affirm my (Black 1983a:165-66) statement that each Northeastern shell midden should be assumed to be culturally stratified until it has been demonstrated that it is not, and that all excavation strategies should be designed to detect and interpret natural and cultural stratification in these sites.

FIGURE 6-1 Map of the Ledge site (BgDq5) showing the areas tested. The inset map shows the location of the site on the islands.
See Appendix Key 3 for key.

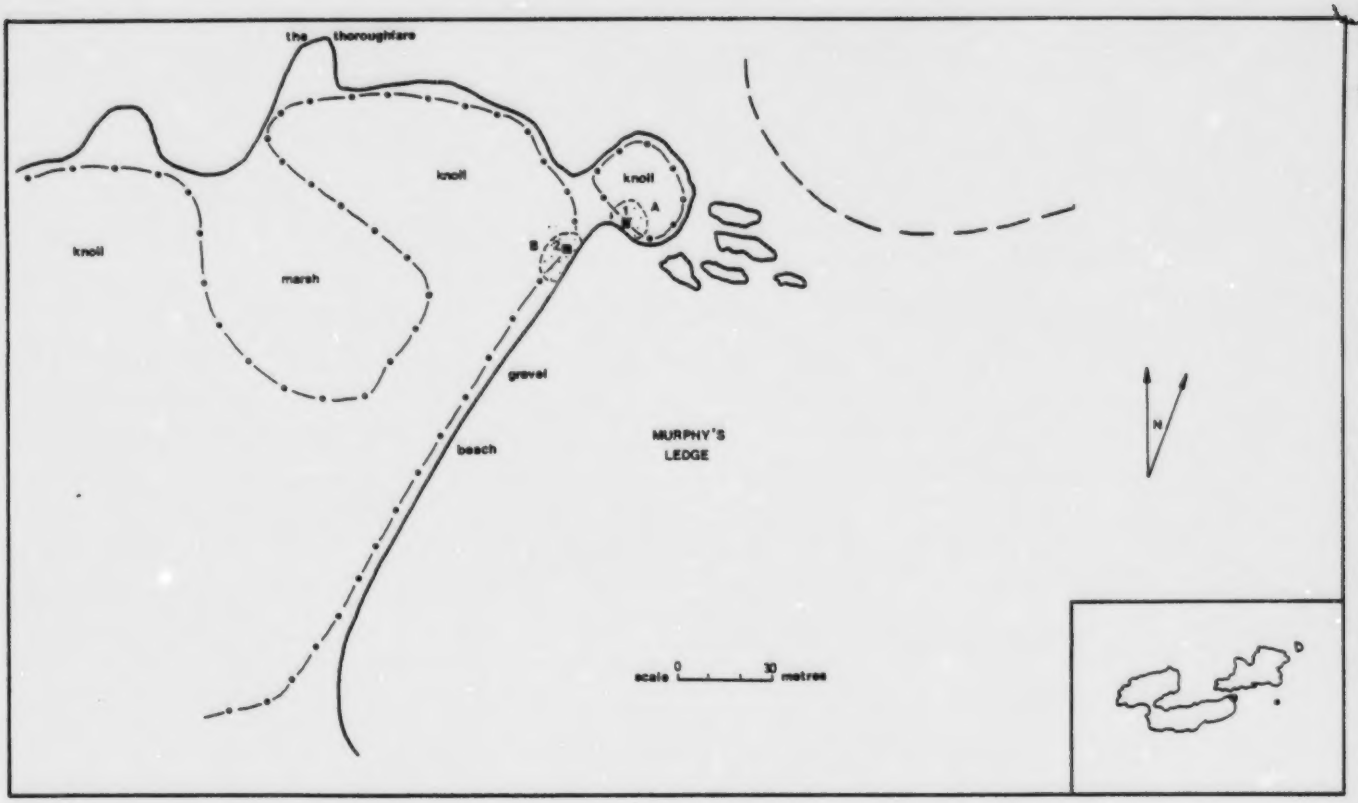

the thoroughfare
knoll
knoll
knoll
marsh
A
B
gravel
beach
MURPHY'S
LEDGE
N
scale 0 30 metres

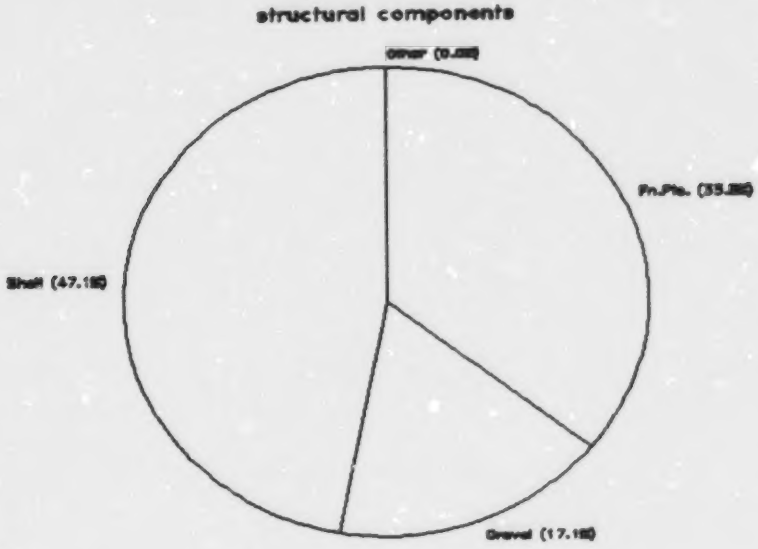
FIGURE 6-2 Stratification of the Ledge site, area A.

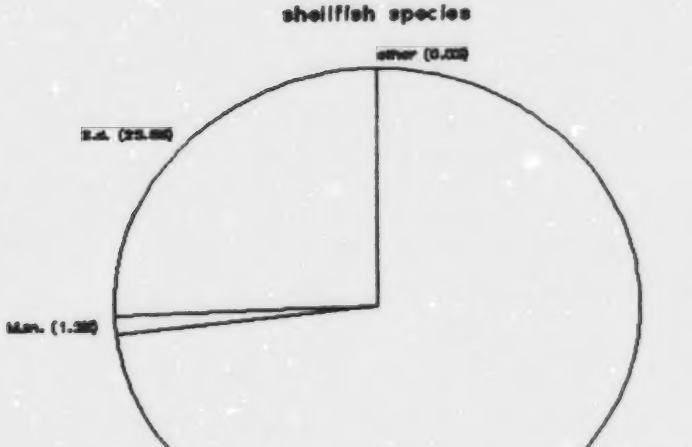
site: BgDq5

provenience: area A

sample volume: 1.00
sample weight: 682.80
sample pH: 7.70

description: black humic soil mixed with finely broken shell and beach derived gravel





other cultural material: fish: 1, vertebra (small cod?)

FIGURE 6-3 Matrix analysis of the Ledge site, area A shell deposit.
See Appendix Key 4 for key.

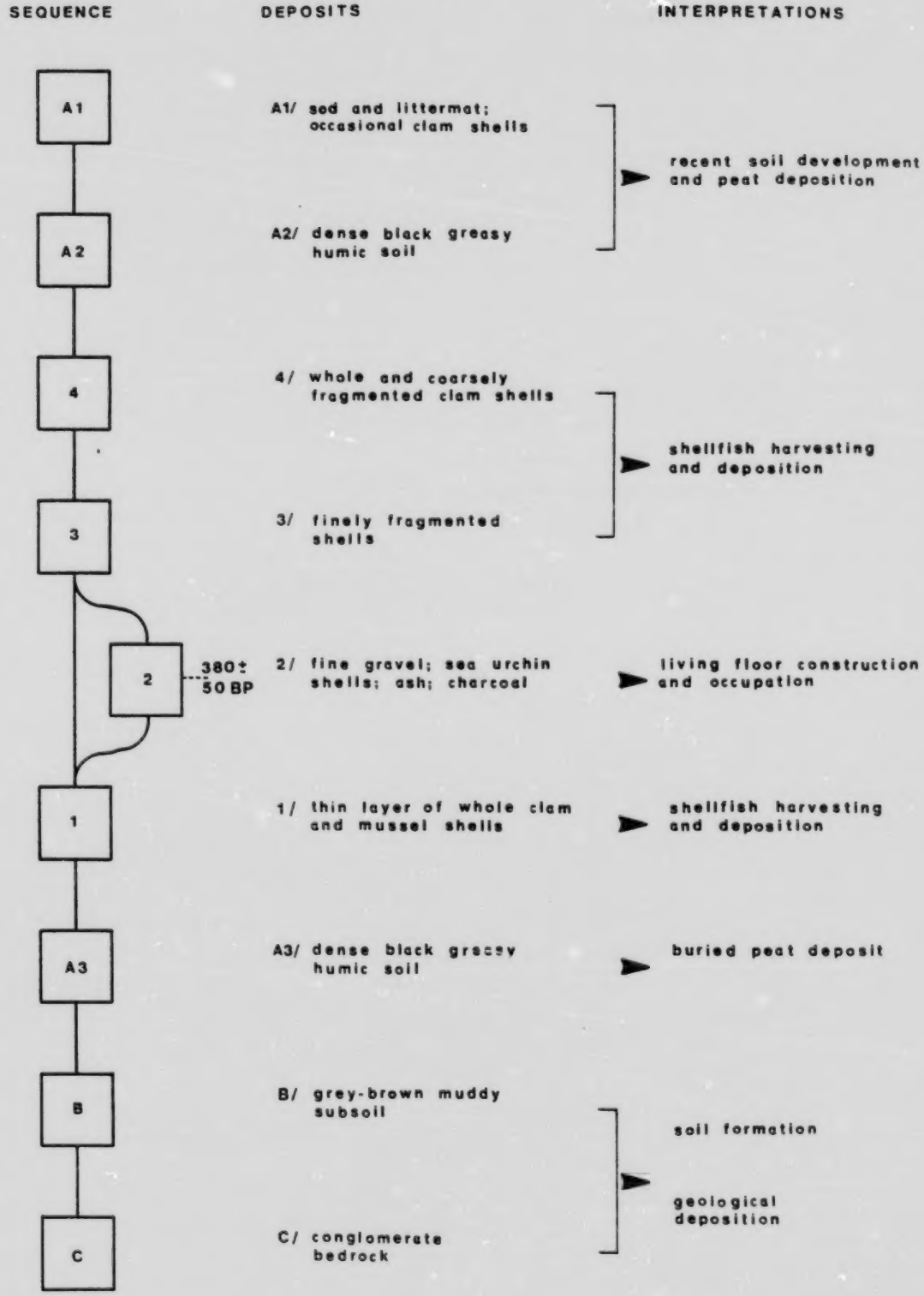

SEQUENCE
DEPOSITS
INTERPRETATIONS
A1
A2
4
3
2
1
A3
B
C
380± 50 BP
A1/ sod and littermat; occasional clam shells
A2/ dense black greasy humic soil
recent soil development and peat deposition
4/ whole and coarsely fragmented clam shells
3/ finely fragmented shells
shellfish harvesting and deposition
2/ fine gravel; sea urchin shells; ash; charcoal
living floor construction and occupation
1/ thin layer of whole clam and mussel shells
shellfish harvesting and deposition
A3/ dense black greasy humic soil
buried peat deposit
B/ grey-brown muddy subsoil
soil formation
C/ conglomerate bedrock
geological deposition

FIGURE 6-4 Stratification of the Ledge site, area B.

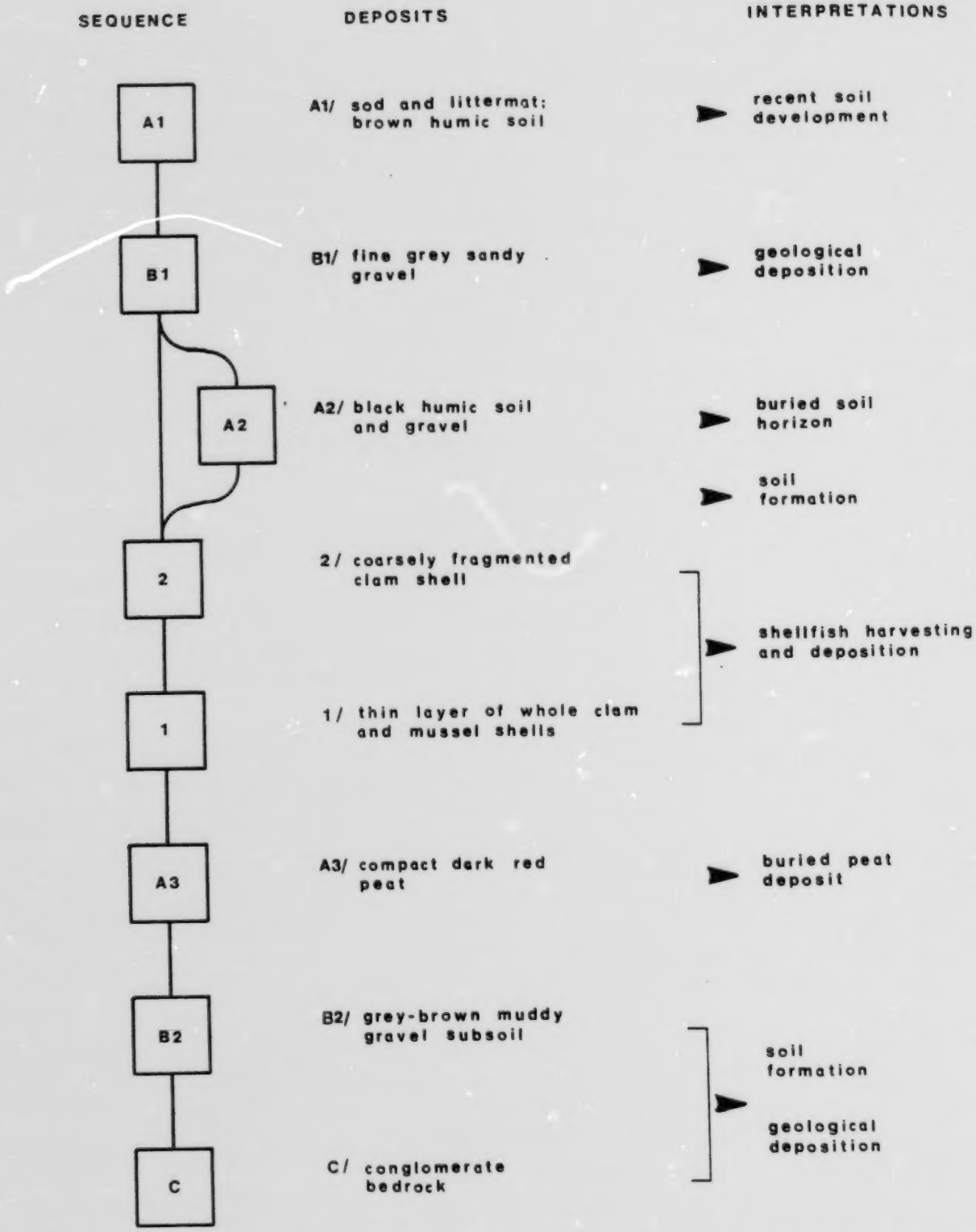

SEQUENCE
DEPOSITS
INTERPRETATIONS
A1
B1
A2
2
1
A3
B2
C
A1/ sod and littermat: brown humic soil
B1/ fine grey sandy gravel
A2/ black humic soil and gravel
2/ coarsely fragmented clam shell
1/ thin layer of whole clam and mussel shells
A3/ compact dark red peat
B2/ grey-brown muddy gravel subsoil
C/ conglomerate bedrock
recent soil development
geological deposition
buried soil horizon
soil formation
shellfish harvesting and deposition
buried peat deposit
soil formation
geological deposition

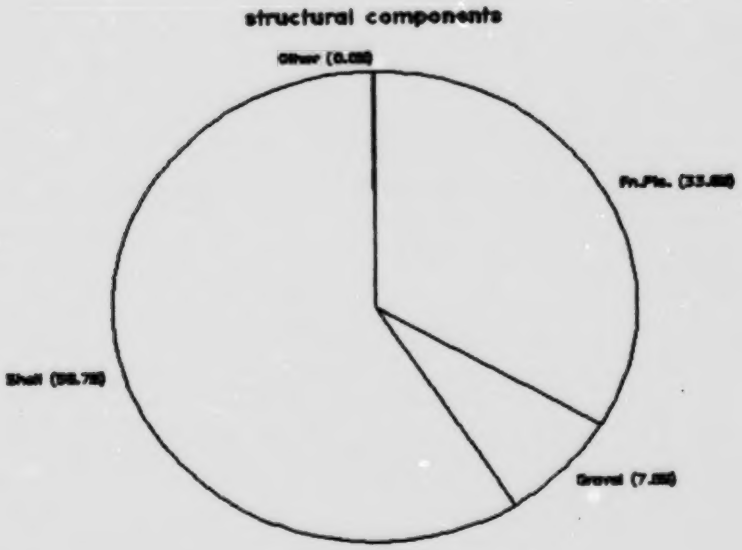
FIGURE 6-5 Matrix analysis of the Ledge site, area B shell deposit.
See Appendix Key 4 for key.

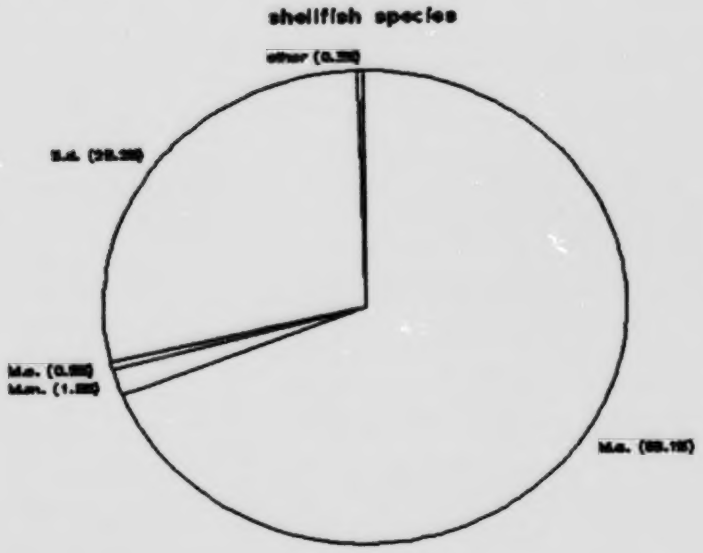
site: BgDq5

provenience: area B

sample volume: 1.00
sample weight: 777.80
sample pH: 7.50

description: whole and broken marine shell mixed with small amount of black humic soil and gravel





other cultural material: none

notes: other shellfish includes barnacles (B. balanoides, possibly B. balanus) and land snails (A. alternata, Discus sp.)

PLATE 6-1 Photograph of the Ledge site (BgDq5) taken from the beach. Area A is to the right, area B to the left.

PLATE 6-2 Photograph of the midden profile, Ledge site, area B.

CHAPTER 7

The Lighthouse Cove Site

by D.W. Black

Introduction

The Lighthouse Cove site (BgDr60) was first recorded in 1981, and was further investigated in 1983 (Black 1985b:28-29). It is an extensive but shallow shell midden deposit located on the cliff line of the Southwestern island overlooking the bar and Lighthouse Cove (Plate 7-1; Figure 7-1). No artifacts or faunal remains, except the marine shell itself, were found in either 1981 or 1983. At the end of my previous report I speculated that the site might represent an historic baiter's mound rather than a prehistoric shell midden.

During Phase II of the Bliss Islands Archaeology Project, Scott Finley excavated two 1 m^2 excavation units and a number of shovel-test pits (Finley 1986); the locations of these units are shown in Figure 7-1. No cultural materials were recovered from unit 1; however, cultural materials of various types were present in unit 2, and in some of the shovel-tests. The materials recovered in 1986 indicate that both prehistoric and historic components are present at the site. In the sections below, the cultural materials and their contexts are described, and a revised evaluation of the site is presented.

Stratification

The stratification observed in the site is shown in Figure 7-2. The site consists of a naturally horizonated soil deposit whose characteristics have been altered by cultural activity and the addition of cultural materials.

Prehistoric artifacts were recovered from layer l, a brown soil deposit which is transitional between the topsoil and subsoil at the site, and layer 2, which consists of topsoil mixed with marine shells. The subsoil at the site is a gravelly clay. A thin sod layer has formed on the surface of layer 2.

Matrix Samples and Invertebrate Faunal Remains

Matrix analyses of layers 1 and 2 in unit 2 are shown in Figures 7-3 and 7-4. Both layers consist mainly of fine particles mixed with gravel. Layer 2 contains about 25% marine shell, virtually all of which is soft-shelled clam. However,

several common periwinkles were also recovered from unit 2; these are considered to be associated with historic activity on the site. The small amount of shell in layer 1 is probably intrusive from layer 2.

Vertebrate Faunal Remains

Nine pieces of bone were recovered from layer 2 in unit 2. These include:
i) the carnassial tooth (M_1r) of a large dog *(Canis sp.);*
ii) two fragments of cortex from the long bones of a medium sized mammal;
iii) three midsection portions of the long bones of a large bird; and
iv) two cranial portions of a large fish, probably belonging to the cod family (Gadidae).

In addition, a vertebral centrum from a large fish was found in the matrix sample from layer 1 in unit 2.

Prehistoric Lithics

Five pieces of lithic debitage were recovered from the site (Figure 7-5, a), three from layer 2 in unit 2, and two from the surface where the site has been disturbed by the road. All of these lithics are relatively large flakes of green chert; however, each piece has some distinctive characteristics, and all may be derived from separate blocks of lithic material. The surfaces of all of the flakes have been bleached white or grey due to exposure and weathering.

Prehistoric Ceramics

Two pieces of native pottery, which fit together to form a single sherd, were found in unit 2, layer 2 (Figure 7-5, b). The sherd is from a thin-walled, poorly fired, and apparently undecorated ceramic vessel, which was tempered with finely ground shell and grit materials.

Historic Artifacts

Two groups of historic artifacts were recovered from the site. The first group includes earthenware ceramic sherds, bottle glass, and a button from the surface of the site. These artifacts indicate recent (20^{th} century) activity.

The second group includes several types of historic ceramic sherds, a clay tobacco pipe stem, bottle glass, and square nails. These artifacts were recovered from unit 2, layer 2, and indicate a historic occupation at the site dating to the late 19^{th} century.

Discussion

The Lighthouse Cove site presents a number of interpretive problems. Since both prehistoric and historic artifacts and shellfish remains are present, and the site has been subject to historic disturbance and soil horizonation, it is impossible to definitely determine whether the shell deposit resulted from prehistoric shellfishing, historic shellfishing, or both. Even the vertebrate faunal remains may have been deposited during either of the occupations. In this sense, the site is similar to the Camp site, although on a smaller scale.

Charcoal samples were recovered from the test units at this site. These may be submitted for radiocarbon dating at some point in the future, although there is a high potential for contamination of prehistoric charcoal in a site of this type. It would be useful to obtain a radiocarbon date associated with the shell-tempered ceramic sherd.

The prehistoric component at the Lighthouse Cove site is probably roughly contemporaneous with the latest component at the Weir site, which also contains shell-tempered ceramics. Shell-tempered ceramics are generally considered to date to the Late Woodland period in the Quoddy region (Bishop 1983:133), that is, to about 1000 years ago.

FIGURES

PLATE 7-1 Photograph of the Lighthouse Cove site (BgDr60).

FIGURE 7-1 Map of the Lighthouse Cove site showing the area of the shell midden and the locations of the test units. The inset map shows the location of the site on the islands.

See Appendix Key 3 for key.

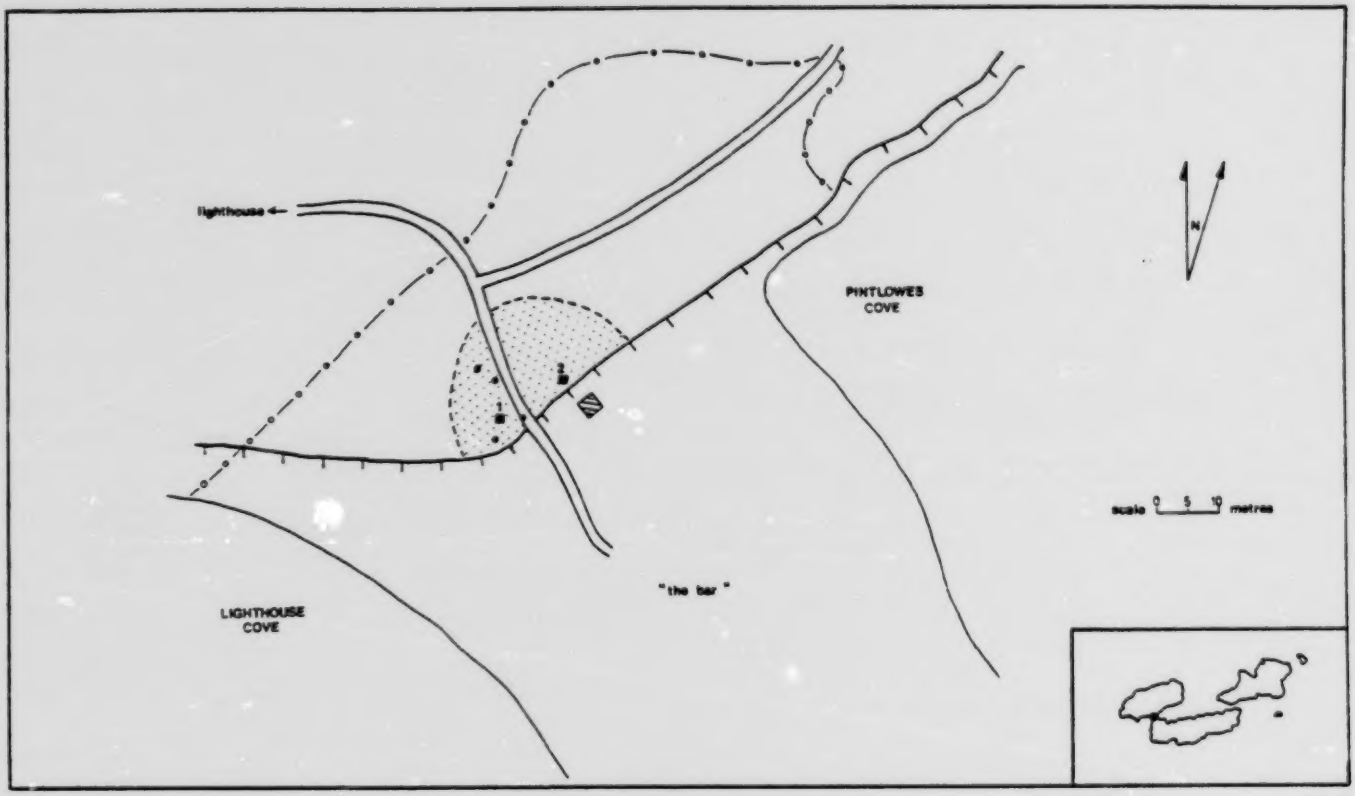

lighthouse
PINTLOWES
COVE
N
scale 0 5 10 metres
"the bar"
LIGHTHOUSE
COVE

FIGURE 7-2 Stratification of the Lighthouse Cove site, unit 2.

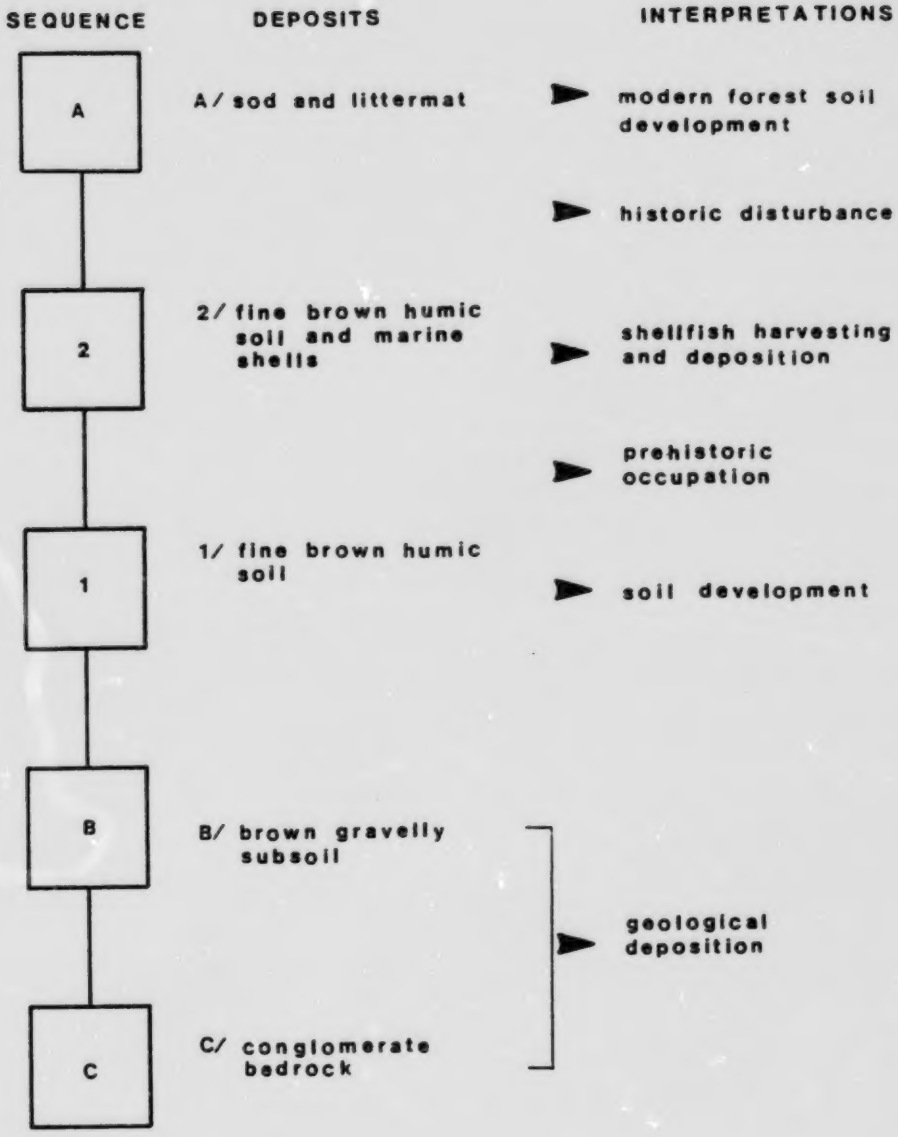

SEQUENCE
DEPOSITS
INTERPRETATIONS
A
2
1
B
C
A/ sod and littermat
2/ fine brown humic soil and marine shells
1/ fine brown humic soil
B/ brown gravelly subsoil
C/ conglomerate bedrock
modern forest soil development
historic disturbance
shellfish harvesting and deposition
prehistoric occupation
soil development
geological deposition

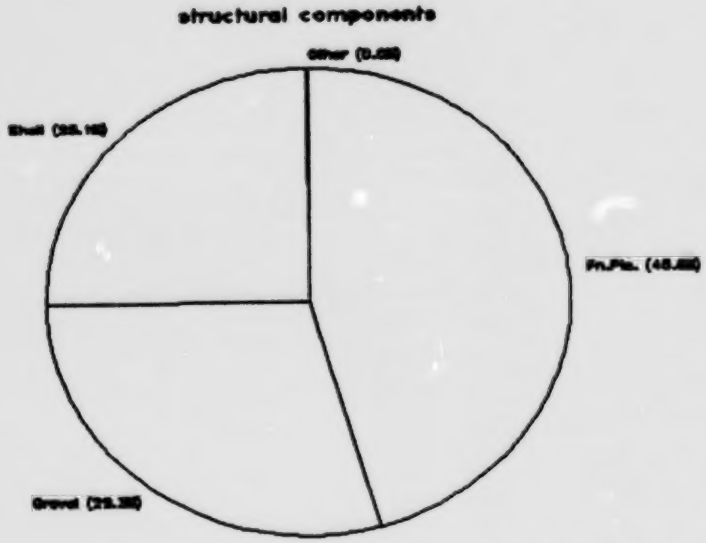
FIGURE 7-3 Matrix analysis of the Lighthouse Cove site, unit 2, layer 2.
See Appendix Key 4 for key.

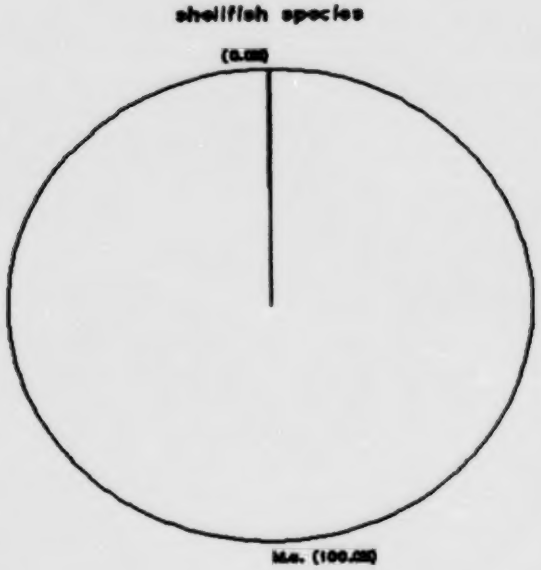
site: BgDr60 Lighthouse Cove

provenience: unit 2 layer 2

sample volume: 1.00
sample weight: 1144.10
sample pH: 7.10

description: brown humic soil mixed with marine shell and gravel





other cultural material: wood charcoal

bones: fish: 1
bird: 1

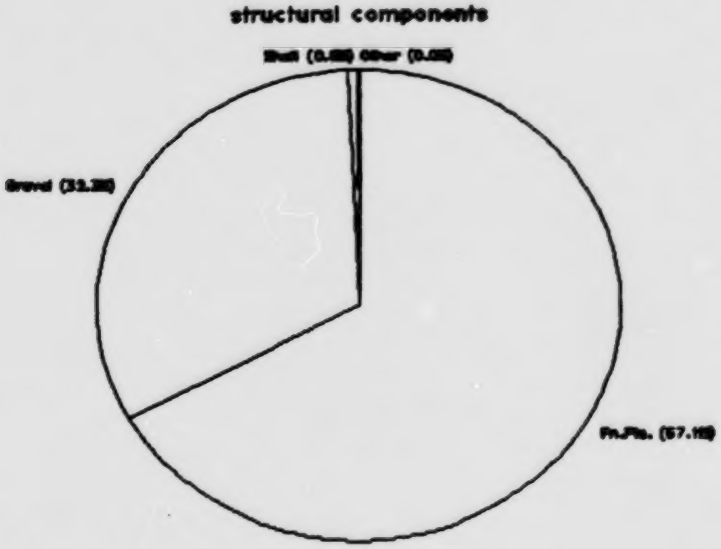
FIGURE 7-4 Matrix analysis of the Lighthouse Cove site, unit 2, layer 1.
See Appendix Key 4 for key.

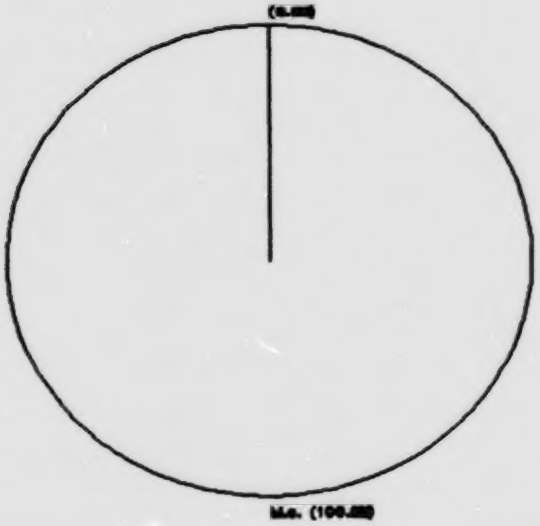
site: BgDr60 Lighthouse Cove

provenience: unit 2 layer 1

sample volume: 1.00
sample weight: 1057.20
sample pH: 7.20

description: light brown subsoil mixed with brown humic topsoil

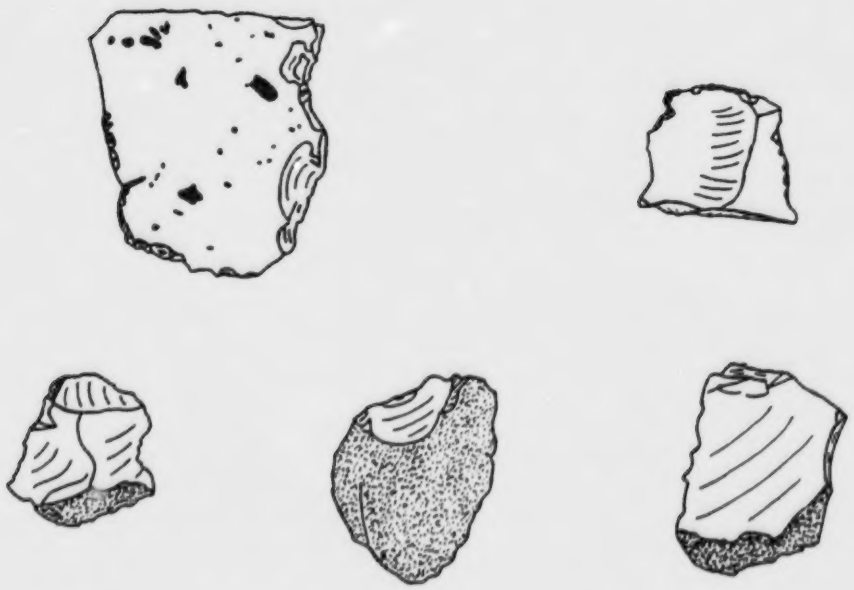




other cultural material: wood charcoal

bones: fish: 1

FIGURE 7-5 Prehistoric artifacts from the Lighthouse Cove site (a=lithic debitage; b=ceramic sherd).



a)

b)

scale cm

CHAPTER 8

The Pintlowes Cove Site

by D.W. Black

Introduction

The Pintlowes Cove site was originally recorded in 1981 and examined again in 1983. It may be one of the sites tested by S.F. Baird in 1869 (Baird 1881:295; Black 1985b:26). The site consists of a narrow strip of shell midden deposited between the base of a low conglomerate knoll and the edge of a small salt marsh on the southern shore of the Southwestern island (Plate 8-1; Figure 8-1). The long axis of the site is oriented perpendicular to the shoreline, and, thus, it has been only slightly impacted by marine erosion.

No prehistoric artifacts or vertebrate faunal remains were recovered from the site in 1983. All of the shells observed in the site are soft-shelled clams, with the exception of one dogwhelk observed near the surface in 1983. Some historic artifacts were observed. I previously concluded that the site might be an historic shell deposit.

1986 Field work

In 1986 two 1 m^2 test units and several shovel-tests were excavated at the site by Scott Finley (Finley 1986). The locations of these units are shown on Figure 8-1. No cultural material was found in unit 1 except soft-shelled clams. The stratification, matrix analysis and cultural material described below pertain to unit 2.

Interpretation of Site Stratification

The stratification in unit 2 is described in Figure 8-2. The site consists of a layer of fine humic soil mixed with clam shells. An analysis of this layer is shown in Figure 8-2. It appears to be a natural soil deposit into which marine shell has been mixed by cultural activity. There are no indications of cultural features in the site, however.

The midden was probably deposited on a pre-existing soil layer at the base of the knoll at a time when the water table in the marsh was lower than at present.

Subsequent rising sea levels have raised the water table in the marsh and saturated the midden, causing the greying of the subsoil deposit and the deposition of an iron-stained horizon (layer 2 in Figure 8-2). There appears to be no differences between layers 1, 2, and 3 except those caused by pedogenic processes.

After the occupation of the site, the midden has been covered by soil washing down from the knoll above, and a thick sod of marsh grasses and sedges has formed on the surface.

Cultural material

Three pieces of lithic debitage, 2 flakes of green chert, and half of a split pebble of quartzite, were recovered from unit 2. None of these has been retouched or obviously altered by use. The only other artifact recovered is a modified beaver incisor. This tool conforms to Bishop's type C incisor tools (see Chapter 10, this volume).

Four pieces of mammal bone were recovered. Three of the pieces fit together; all are from the rib(s) of a medium-sized mammal. In addition, 1 piece of a bird longbone was found; this piece probably is a portion of the humerus of a duck-size bird. All of these pieces of bone appear to have been charred.

Conclusions

The Phase II field work has established that the Pintlowes Cove site is a prehistoric shell midden. This discovery increases the probability that this is the site at Pintlowes Cove which Baird tested more than a century ago. The site has not been dated by the radiocarbon technique because insufficient charcoal was recovered during the test excavations. The prehistoric artifacts recovered suggest that the site was occupied relatively late in the prehistoric period, and is probably roughly contemporaneous with the Lighthouse Cove and Northeast Point sites, and the Late Woodland components at the Camp and Weir sites.

The vertebrate faunal sample may not be comparable to those recovered from the other shell middens. Although the acidity of the soil at the site has been somewhat neutralized by the shells, it remains fairly acidic. The fact that all of the recovered bones appear charred may indicate that unburned bones have not been preserved at this site.

The Pintlowes Cove site has been at least slightly disturbed by historic activity, saturation and soil formation processes. However, it appears that the faunal remains at the site result from the prehistoric occupation.

PLATE 8-1 Photograph of the Pintlowes Cove site (BgDr61).

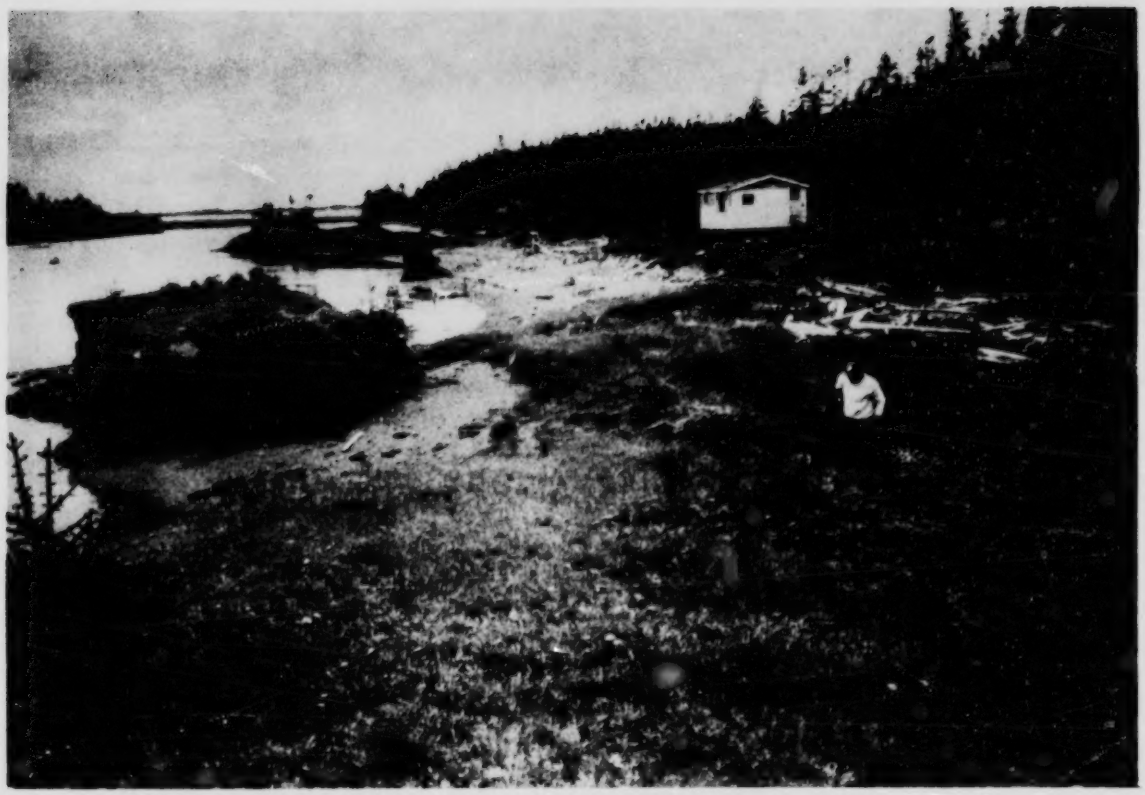


FIGURE 8-1 Map of the Pintlowes Cove site.
See Appendix Key 3 for key.

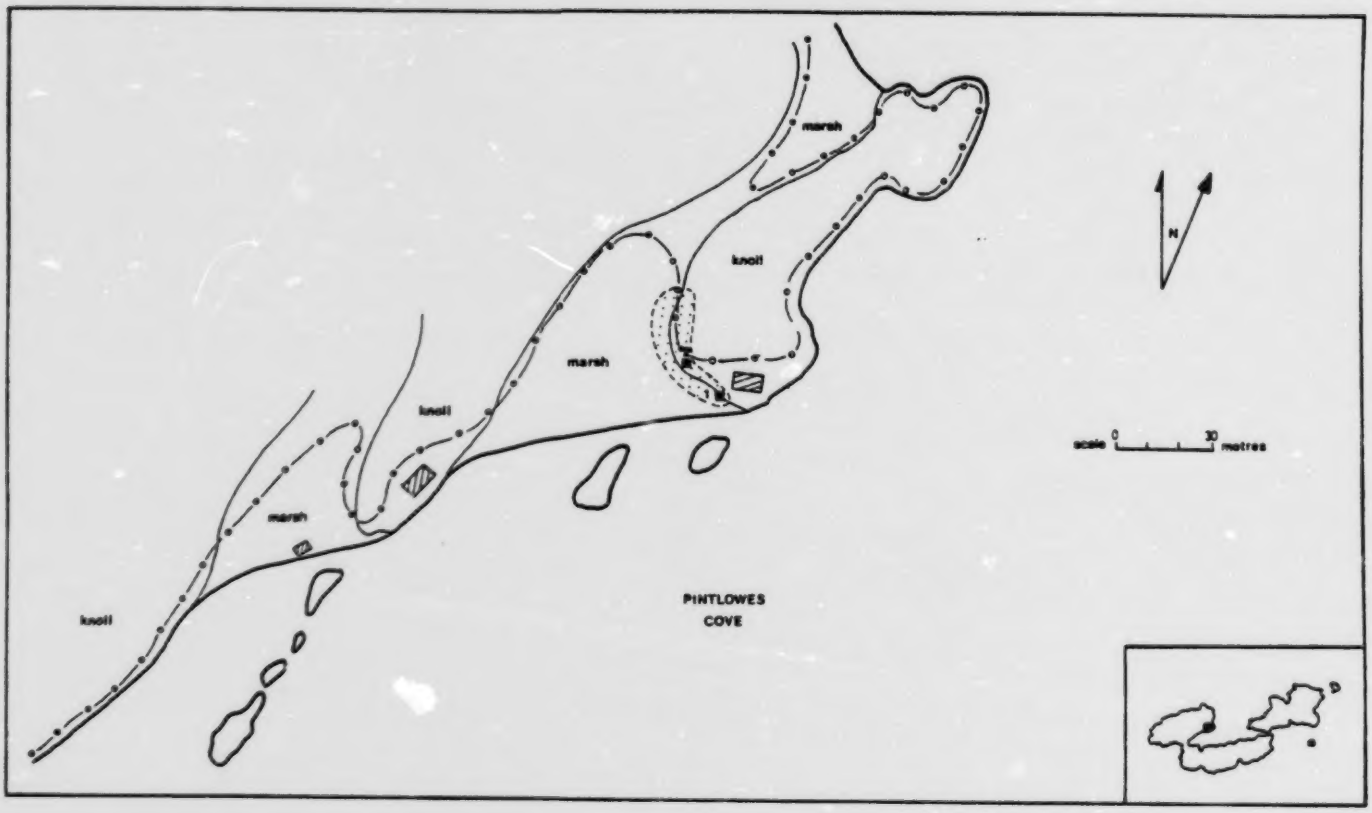

marsh
knoll
marsh
knoll
marsh
knoll
N
scale 0 30 metres
PINTLOWES
COVE

FIGURE 8-2 Stratification of the Pintlowes Cove site, unit 2.

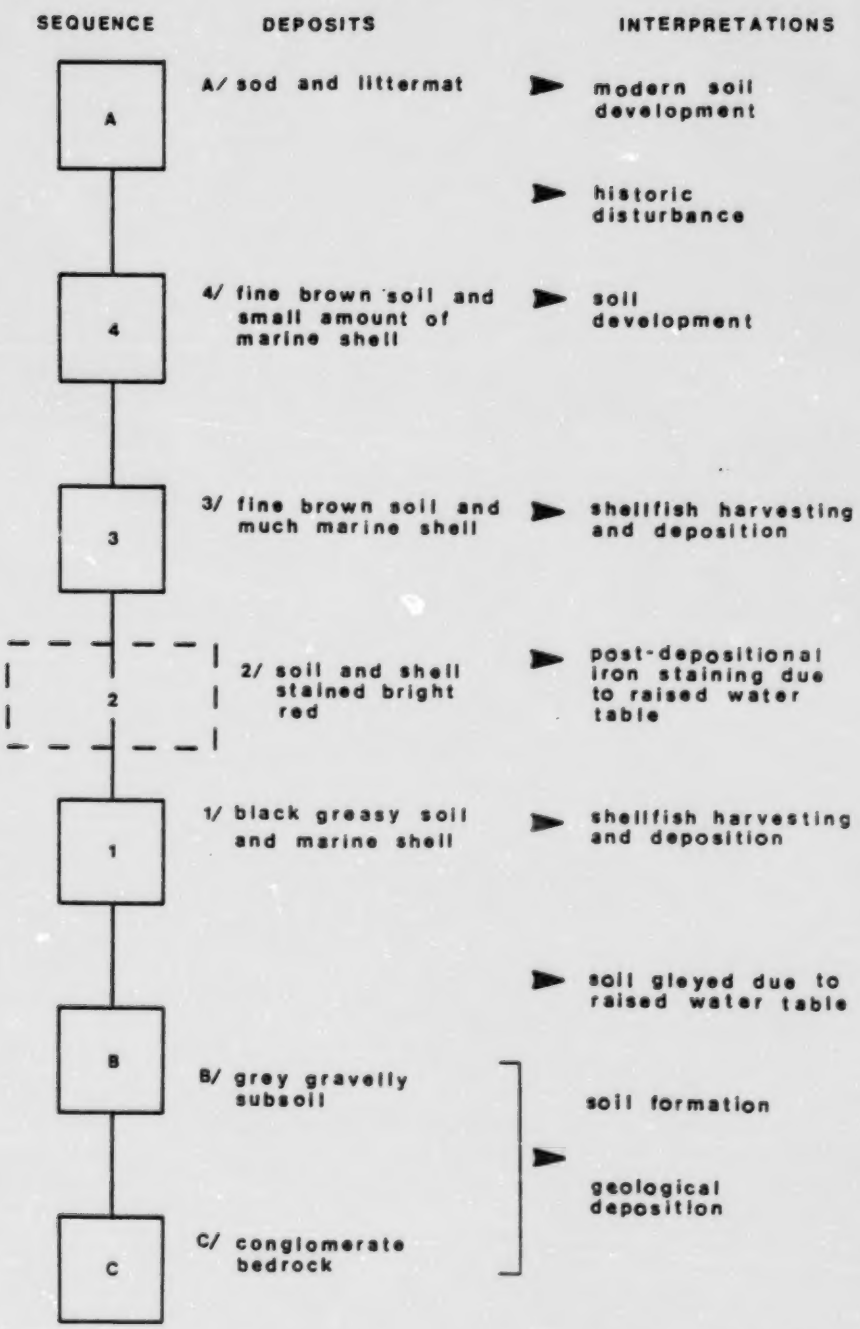

SEQUENCE
DEPOSITS
INTERPRETATIONS
A
A/ sod and littermat
modern soil development
historic disturbance
4
4/ fine brown soil and small amount of marine shell
soil development
3
3/ fine brown soil and much marine shell
shellfish harvesting and deposition
2
2/ soil and shell stained bright red
post-depositional iron staining due to raised water table
1
1/ black greasy soil and marine shell
shellfish harvesting and deposition
soil gleyed due to raised water table
B
B/ grey gravelly subsoil
soil formation
geological deposition
C
C/ conglomerate bedrock

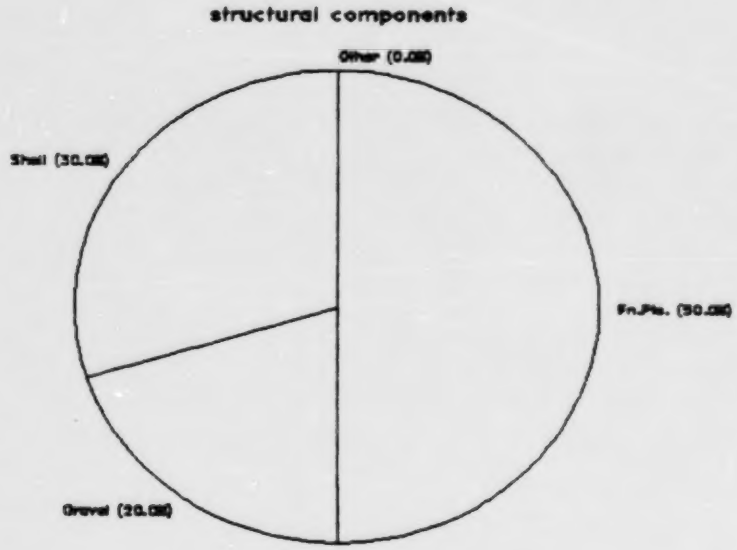
FIGURE 8-3 Matrix analysis of the Pintlowes Cove site, unit 2, layer 3.
See Appendix Key 4 for key.

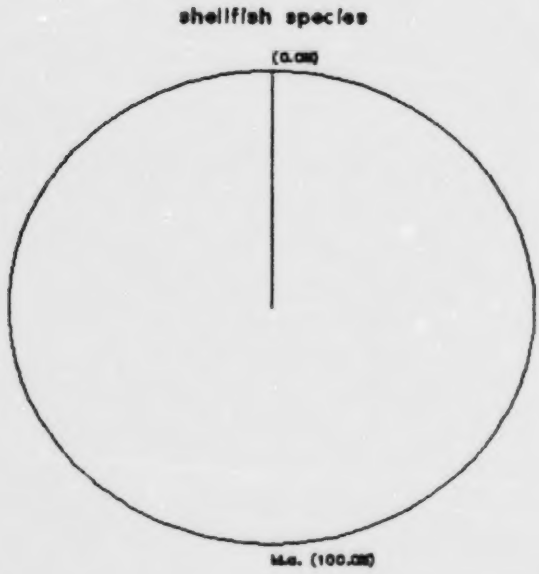
site: BgDr61 Pintlowes Cove

provenience: unit 2, layer 3

sample volume: 1.00
sample weight: 100.00
sample pH: 6.80

description: dense black humic soil mixed with moderate amount of broken and fragmented marine shell; some gravel, all apparently bedrock derived





other cultural material:

traces of wood charcoal

FIGURE 8-4 Prehistoric artifacts from the Pintlowes Cove site (a-lithics; b-beaver incisor tool).

a)

b)

scale cm

CHAPTER 9

The White Water Site

by D.W. Black

Introduction

The White Water site (BgDr62) was first recorded in 1981, and was examined again in 1983. It is a relatively extensive but shallow deposit of marine shell located in a low-lying marshy area on the southern shore of Pintlowes Cove (Figure 9-1). All of the site has been seriously disturbed by historic activity and periodic inundation.

No cultural material was found at the site in 1983. I concluded (Black 1985b:30-31) that the site probably did not represent a prehistoric shell midden, and suggested that it might be either an historic, or a natural, shell deposit.

In part, my doubt about the site's being prehistoric was based on its location (Black 1985b:60). It is significantly exposed to the northwest, and thus, to prevailing winter winds. This is unlike the locations of the other shell middens on the Bliss Islands and is very unusual compared to the locations of prehistoric shell middens in the Quoddy region as a whole (Black 1984b).

1986 field work

During Phase II of the Bliss Islands Project, Scott Finley (Finley 1986) excavated two 1 m^2 excavation units were excavated at the site (Plate 9-1). The site consists of a 10-15 cm deep layer of marine shell mixed with stones, gravel, subsoil, and decaying plant material, without any obvious stratification. The subsoil is a mixture of gravel and clay, grey in colour due to permanent saturation. The top soil is poorly developed, probably because the surface of the site is periodically inundated by salt water.

Invertebrate faunal remains include mainly soft-shelled clams *(Mya arenaria)*, plus a few northern whelks *(Buccinum undatum)*, dogwhelks *(Nucella lapillus)*, and traces of sea urchin *(Strongylocentrotus droebachiensis)*. No vertebrate faunal remains were found.

Artifacts include one piece of historic brass found on the surface of the site, and a cinder found in the shell deposit in excavation unit 1. No prehistoric artifacts were found.

Interpretations and Conclusions

The Phase II testing of the White Water site has convinced me that it is not, even in part, a prehistoric archaeological site. The seriously disturbed condition of the site, and the absence of significant historical artifacts, make further interpretations of the site difficult. For these reasons, I have decided to exclude this site from future analyses of Bliss Islands prehistoric archaeology.

FIGURE 9-1 Map of the White Water site (BgDr62).
See Appendix Key 3 for key.

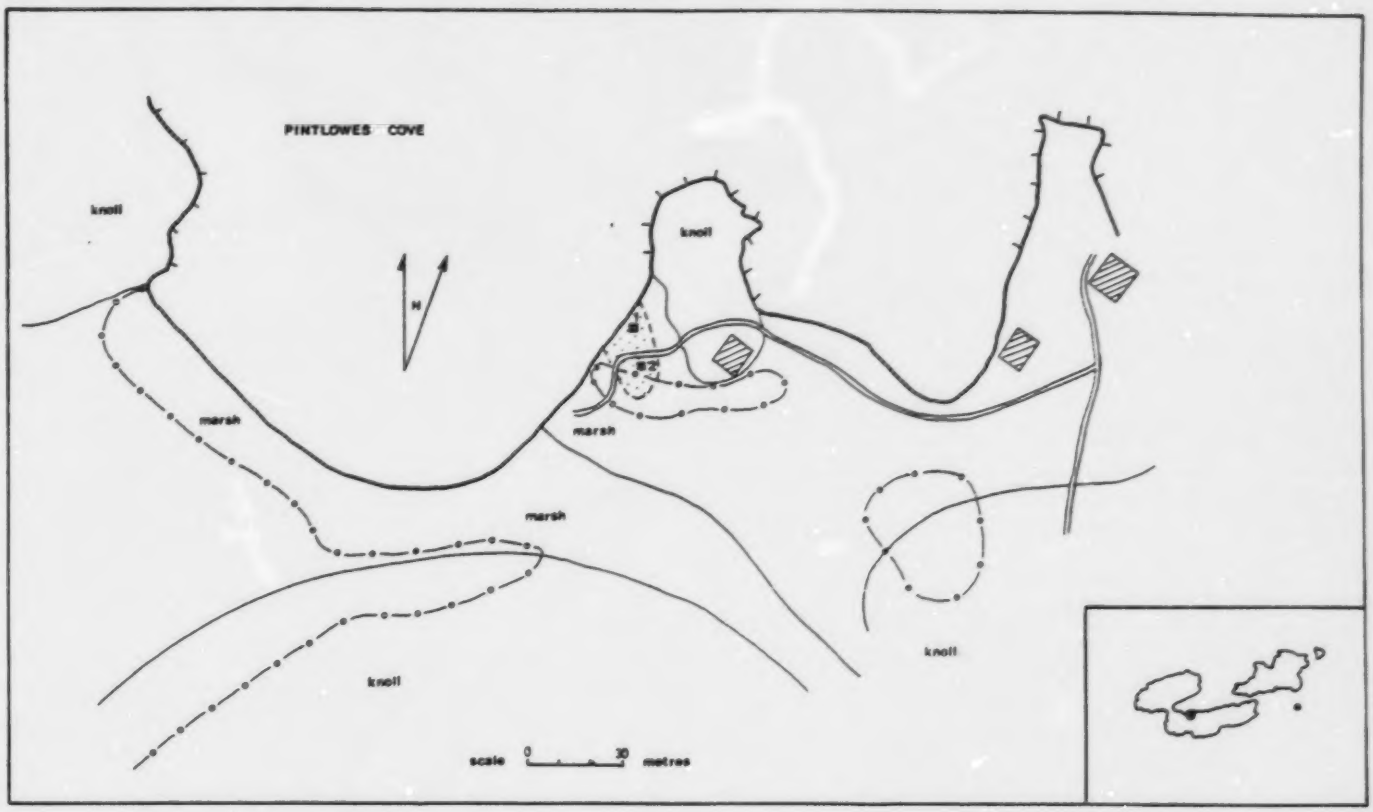

PINTLOWES COVE
knoll
knoll
N
marsh
marsh
marsh
knoll
knoll
scale 0 30 metres

PLATE 9-1 Photograph of excavations at the White Water site.

PART IV: Specialed Studies

CHAPTER 10

Organic Artifacts from the Bliss Islands

by K. Robins and D.W. Black
*1

Introduction

One of the most interesting aspects of the prehistoric cultural material recovered during the Bliss Islands Archaeology Project is the large number and variety of organic artifacts. Organic artifacts are those made from parts of animals or plants. Those from the Bliss Islands sites are made from bones, antler, teeth and shells.

Shell middens provide a depositional environment in which such artifacts are well preserved. This is in contrast to other types of prehistoric sites found in the Maritime Provinces, where organic materials are preserved only in exceptional circumstances, such as when they have been charred or calcined by exposure to fire. Thus, the organic artifact assemblages from the Bliss Islands are potentially of considerable significance in expanding our knowledge of prehistoric technology and subsistence in the Maritimes.

Organic artifacts were found at only four of the seven sites excavated. The numbers of organic artifacts recovered and their distribution by site are presented in Table 10-1. In the sections below these artifacts are briefly described and possible functions of the artifacts are suggested. The significance of their distribution is also discussed.

Modified rodent incisors

These are the most common artifacts found in the Bliss Islands sites, as is the case in many Northeastern shell middens. In total, 23 modified incisors were found, 4 at the Camp site, 17 at the Weir site, and 1 each at the Northeast Point and Pintlowes Cove sites. These were the only organic artifacts recovered from the latter two sites.

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*1 Valery Monahan, St. Mary's University, initially illustrated and described some of the bone artifacts from the Camp site; the authors wish to thank her for her contribution to this chapter.

Most of the modified rodent incisors can be identified as those of beaver *(Castor canadensis)* but it is possible that some of the smaller incisors are those of porcupines *(Erethizon dorsatum)*. Bones of both of these species have been identified at the Camp and Weir sites.

The incisor artifacts from the Bliss Islands sites have been classified according to a typology devised by Bishop (1983:69-74) for incisor tools from the Partridge Island site. "Examination of the Partridge Island collection revealed four different and distinctive wear patterns, quite likely related to highly specific but unknown manners of use."

Type A

Type A incisors are characterized by alterations of the natural contours of the occlusal tooth surface. Distal tooth regions are worn flat and square. Striations on the polished surface are at right angles to the tooth shaft running from the enamel to the lingual margin.

Type B

Type B modification of the occlusal surface follows the natural contour of the [cutting surface of] the tooth tip. Wear is diagonal with striations angled toward the labial surface.

Type C

Type C incisors bear a single wear plane which completely alters the distal tooth contours. Essentially, the remaining tooth is a longitudinal half on which the lingual surface and one edge have been worn flat. Striations are angled from edge to edge with the enamelled edge chipped.

Type D

Type D modification completely alters the distal region of the tooth. Two planes of wear exist. One is angled downward from the lingual surface to the medial edge. This surface is highly polished with light striations from medial to lingual surfaces. The second plane is angled toward the tooth facet, and bears strong lateral striations.

Figure 10-1 clarifies the terminology used in describing rodent incisors, and illustrates the types of incisor modification which Bishop defined. In all of the types, the proximal ends and the proximal and medial lingual surfaces of the teeth may be slightly to extensively modified; the variations probably reflect the different manners in which the tools were hafted (that is, put in handles) to facilitate their use.

Table 10-2 shows the numbers and distribution of the different types of incisor tools. The incisors which were not classified are midsection fragments with evidence of modification but lacking the diagnostic distal ends of the teeth. Type B and Type C incisor tools are by far the most common types.

Two of the beaver incisor tools warrant further description. The first, found in the upper component at the Weir site, is a type B modified incisor which is still in its natural anatomical position in the left mandible of a juvenile beaver. The premolar and the first and second molars are also still in place in this mandible. Apparently, the jaw was removed intact from the beaver carcass and the incisor used as a tool with the jaw serving as a handle for the tool.

Another, more elaborate beaver incisor tool, was also found at the Weir site. In this case a type B incisor tool was extensively modified on the lingual surface of the tooth and hafted in a handle made from the antler of a deer. The tooth was inserted into an oval hole gouged through the base of the antler tine, perpendicular to the length of the handle. Presumably, the tooth was originally bound in place by some sort of cord or leather lacing which has since rotted away. This tool was found complete except for the binding, and is shown in Figure 10-1.

Other examples of this sort of tool have been found in prehistoric sites in the Maritimes, but to the best of our knowledge, this is the most complete one. These beaver incisor knives are usually thought to represent the prehistoric equivalents of the metal crooked knives used for woodworking by native people during the historic period.

Rodent incisor artifacts were probably used for a variety of carving and woodworking activities. We agree with Bishop that the different types of modifications are probably related to specific tasks. Use wear studies and experimental archaeology might shed some further light on how these tools were used.

Worked Antler

Only one piece of worked antler was recovered during the project. This is the deer antler tine that served as the handle for the incisor knife described above (see Plate 10-1).

Other Modified Teeth

Three other modified teeth were recovered from the Weir site. Two of these are incisors from an unidentified medium-sized carnivore. An oval hole has been gouged through the root of each of these incisors, presumably so that they could be suspended or sewn to clothing (Figure 10-2, a). The function of these teeth was probably ornamental and possibly magico-religious. The third tooth is the canine of a large dog *(Canis* sp.). On the lingual edge of the crown a groove has been worn into the enamel, perhaps as a result of the tooth being used as a cutting tool.

Awls

Eight awls were recovered, two at the Camp site and six at the Weir site. The Camp site awls consist of one made from the longbone of a large bird, and one made from the ulna of a deer or caribou. From the Weir site one awl is made of bird longbone, and five are made from splinters of mammal longbone cortex (Figure 10-2, b). Awls such as these were probably used in leather working, especially punching holes in order to sew clothing together. Awls may also have been used in basket and net making.

Needles

Seven fragments representing five bone needles, two from the Camp site and three from the Weir site, were found during the project. Each of the needles is wide and flat in shape and has been made from an extensively modified strip of mammal cortical bone. Each has an oval- shaped eye gouged through the centre of the needle (Figure 10-2, c). Ethnographically, similar artifacts were used for basket and net making.

Barbed artifacts

Two unilaterally barbed bone artifacts were recovered from the Camp site (Figure 10-2, d). Both are fragmentary. These artifacts probably functioned as spear or harpoon points for hunting or fishing.

Projectile points

This artifact, associated with the oldest component at the Weir site, is distinguished from the category above because it is an unbarbed, stemmed, spear or harpoon point. It appears to have been made from a portion of the rib of a large mammal, and was recovered complete except for a small amount of damage to the stem. This artifact has been previously described (see chapter 2, this volume), and is illustrated in Plate 10-2.

Bone Tips

Six bone tips were recovered during the excavations, 5 at the Camp site and 1 at the Weir site (Figure 10-2, e). By definition, all of these pieces are fragments of larger artifacts. Four of the tips from the Camp site are relatively small, and probably represent distal portions of broken of awls and/or needles. The other two tips, 1 from Camp and 1 from Weir, are larger and broader; these probably represent distal ends of broken harpoon or spear points.

Bone working Debitage

Nine pieces of miscellaneous worked bone were recovered. Five of these are relatively large and convincing examples of bone working debitage (Figure 10-2, f). These are pieces of longbone cortex from large mammals and have evidence of carving, polishing and grooving (in order to section the pieces of bone). All five pieces were found at the Camp site.

The other four pieces in this category are much smaller pieces of modified mammal bone cortex. One was found at the Camp site and three at the Weir site. These may represent bone working debitage or fragments of broken unfinished bone artifacts.

Shell Artifacts

Two modified deep-sea scallop *(Placopecten magellanicus)* shells were found at the Weir site. One is the lower valve of a very large scallop which has been extensively modified so that the outline of the shell is roughly hexagonal in shape. This artifact is shown in Plate 10-3. The other scallop artifact is a much smaller lower valve which has been modified to make its outline almost perfectly circular.

There is apparently some ethnographic evidence (reported by Denys) that shell artifacts were used for polishing bows (Nash 1986:104). It is possible that the scallop shell artifacts from the Weir site served this sort of function. Experimental work by one of the authors (KR) indicates that scallop shells can be

used effectively as hide scrapers and that the resulting wear patterns are similar to those on the more extensively modified artifact described here.

Artifact distributions

The horizontal distributions of the organic artifacts in the Camp site and the Weir site are shown in Figures 10-3 and 10-4 respectively. These diagrams distinguish between incisor tools, other bone tools and shell artifacts. It is apparent that in both sites organic artifacts tend to occur in clusters rather than being generally distributed throughout the sites. This is true of the Camp site in spite of the evidence that there has been considerable post-depositional disturbance of this site.

The clustering of organic artifacts is even more apparent at the Weir site when their stratigraphic distribution is considered (Figure 10-5). More than half of these artifacts are located in the upper part of stratigraphic component 3 and in stratigraphic component 4.

Our interpretation of these distributions is that they have temporal, spatial and functional implications. Bone tools of several types were made and used together in particular areas of the sites. These areas may represent task-specific or gender-specific work areas.

In general, the density of these artifacts is twice as great at the Weir site as at the Camp site (Table 10-1). However, in spite of this, more bone working debitage was found at the Camp site, suggesting more production of bone tools there, but more use of bone tools at Weir. The density of rodent incisor artifacts is particularly high at the Weir site, suggesting that carving may have been an important activity there.

It appears that most of the organic artifacts from the Bliss Islands are associated with the later prehistoric occupations on the islands, especially those dating to the Late Woodland period. It may be possible to trace some changes in time in specific organic artifact types. For example, incisor tools are much more common in the later occupations, but the most extensively modified incisors tend to be associated with the earlier occupations at the Weir site.

Over the years relatively large assemblages of organic artifacts have been reported from a number of prehistoric shell middens in the Maritime Provinces. These reports have been mainly descriptive. There has been little effort directed toward understanding the functions of organic artifacts, or the relationships of specific types of organic artifacts to the general scheme of cultural history for the area. Experimental archaeology, use wear analysis, and seriation could be used to approach these questions. We feel that prehistoric organic artifacts from the Maritimes would make an excellent focus for thesis or dissertation research.

TABLE 10-1 Provenience of organic artifacts from the Bliss Islands by site.

Sites:	Camp:	Weir:	Northeast Point:	Pintlowes Cove:
Artifact Types:				
modified rodent incisors:	4	17	1	1
worked antler:	0	(1)*	0	0
other modified teeth:	0	3	0	0
awls:	2	6	0	0
needles:	2	3	0	0
barbed bone artifacts:	2	0	0	0
projectile points:	0	1	0	0
bone tips:	5	1	0	0
bone working debitage:	6	3	0	0
shell artifacts:	0	2	0	0
Totals:	21	36	1	1
Density:**	0.66	1.33	0.50	0.50

(*part of a composite tool numbered in the category above)
(**number of organic artifacts per square meter excavated)

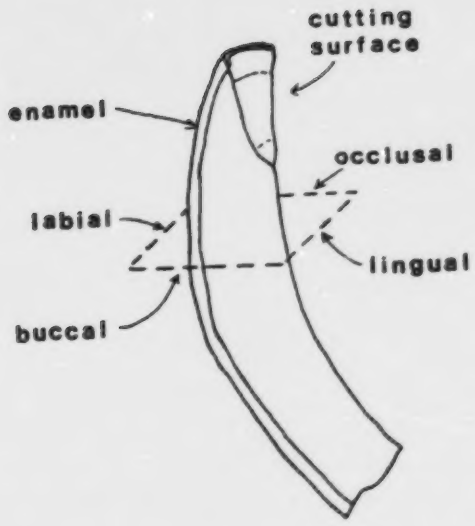
TABLE 10-2 Distribution of types of rodent incisor modification by site.

Modification:	type A:	type B:	type C:	type D:	unclassified
Sites:					
Camp:	0	2	2	0	0
Weir:	1	7	3	2	4
Northeast Point:	0	0	0	0	1
Pintlowes Cove:	0	0	1	0	0
Totals:	1	9	6	2	5

FIGURES

FIGURE 10-1 Types of rodent incisor modification
adapted from Bishop (1983:73,176); (a=lower left beaver incisor showing tooth terminology; b=types of incisor modification).

a)



distal

medial

proximal

b)

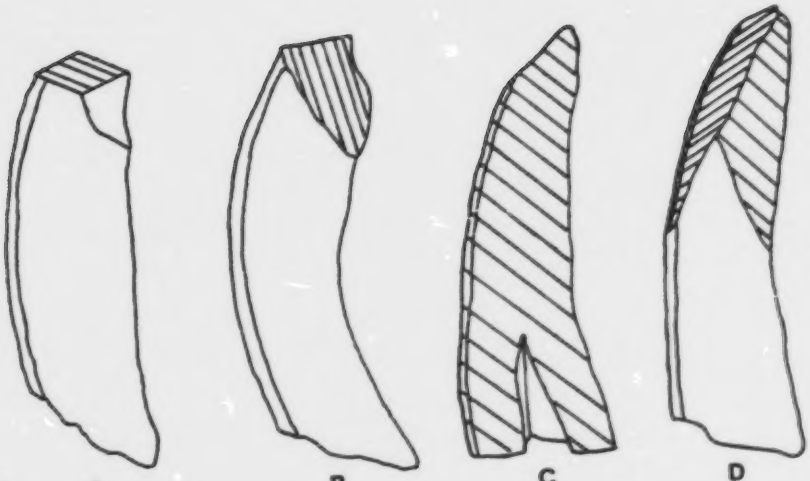


FIGURE 10-2 Diagrams of bone artifacts
(a=tooth ornament; b=awl; c=needle; d=barbed artifact; e=bone tip; f=bone working debitage).

a)

b)

c)

d)

e)

f)

scale cm

FIGURE 10-3 Horizontal distribution of organic artifacts in the Camp site.

BgDq4 : Organic Artifact Distribution

incisor tools ●

other bone tools ○

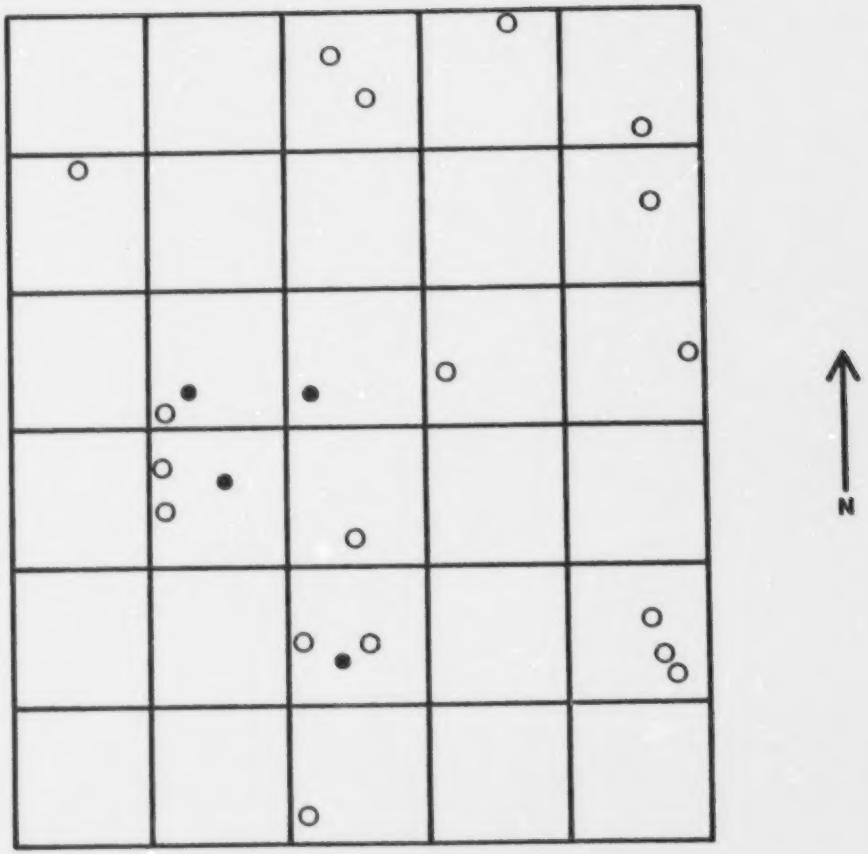


FIGURE 10-4 Horizontal distribution of organic artifacts in the Weir site.

BgDq 6: Organic Artifact Distribution (Plan View)

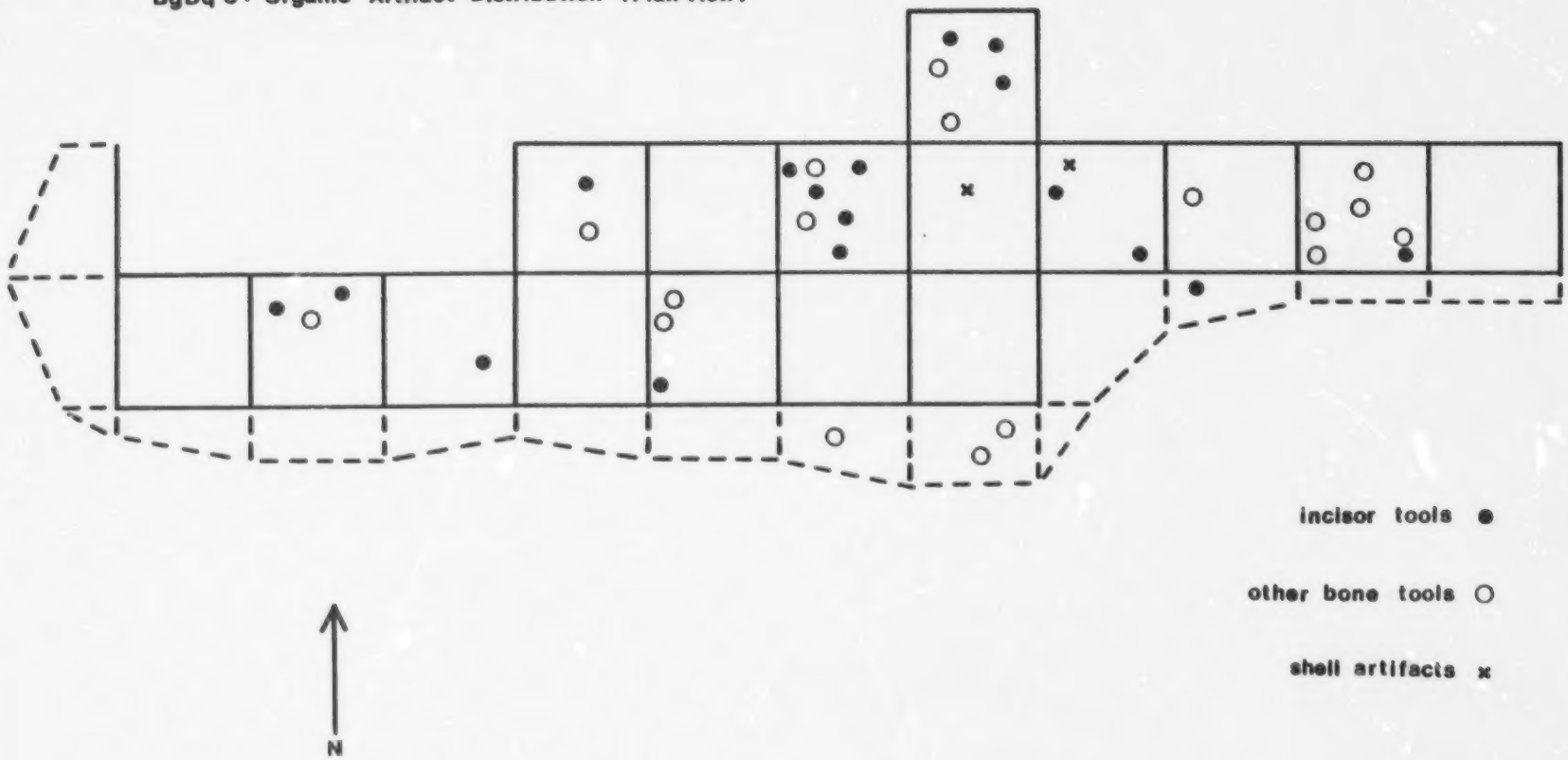
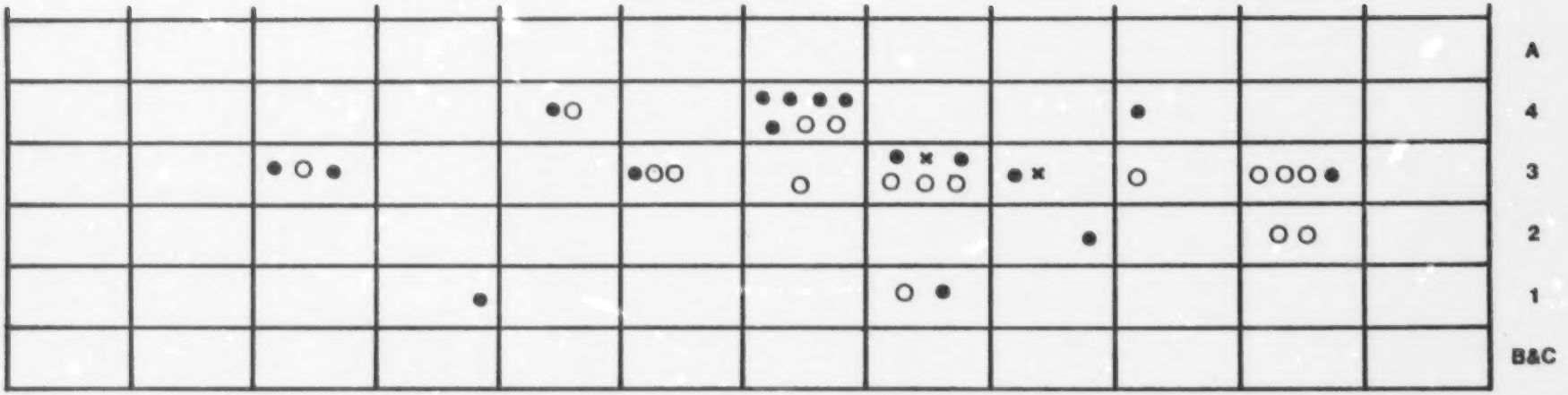


FIGURE 10-5 Stratigraphic distribution of organic artifacts in the Weir site.

BgDq 6 : Organic Artifact Distribution (Profile)



Natural Layers : A - peat soil
B&C - subsoil & bedrock

Cultural Layers : 4 - upper black soil
3 - upper middens & living floors
2 - lower middens living floors
1 - lower black soil

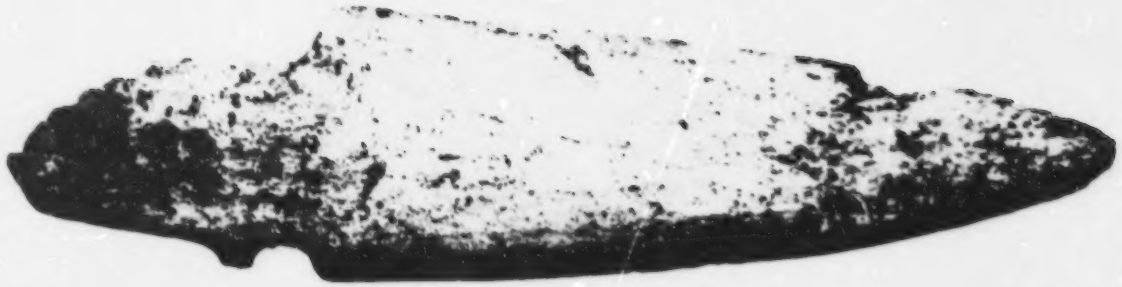
incisor tools ●

other bone tools ○

shell artifacts ×

PLATE 10-1 Beaver incisor crooked knife in situ.

PLATE 10-2 Mammal bone projectile point.



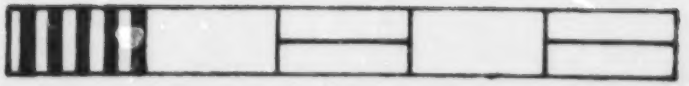
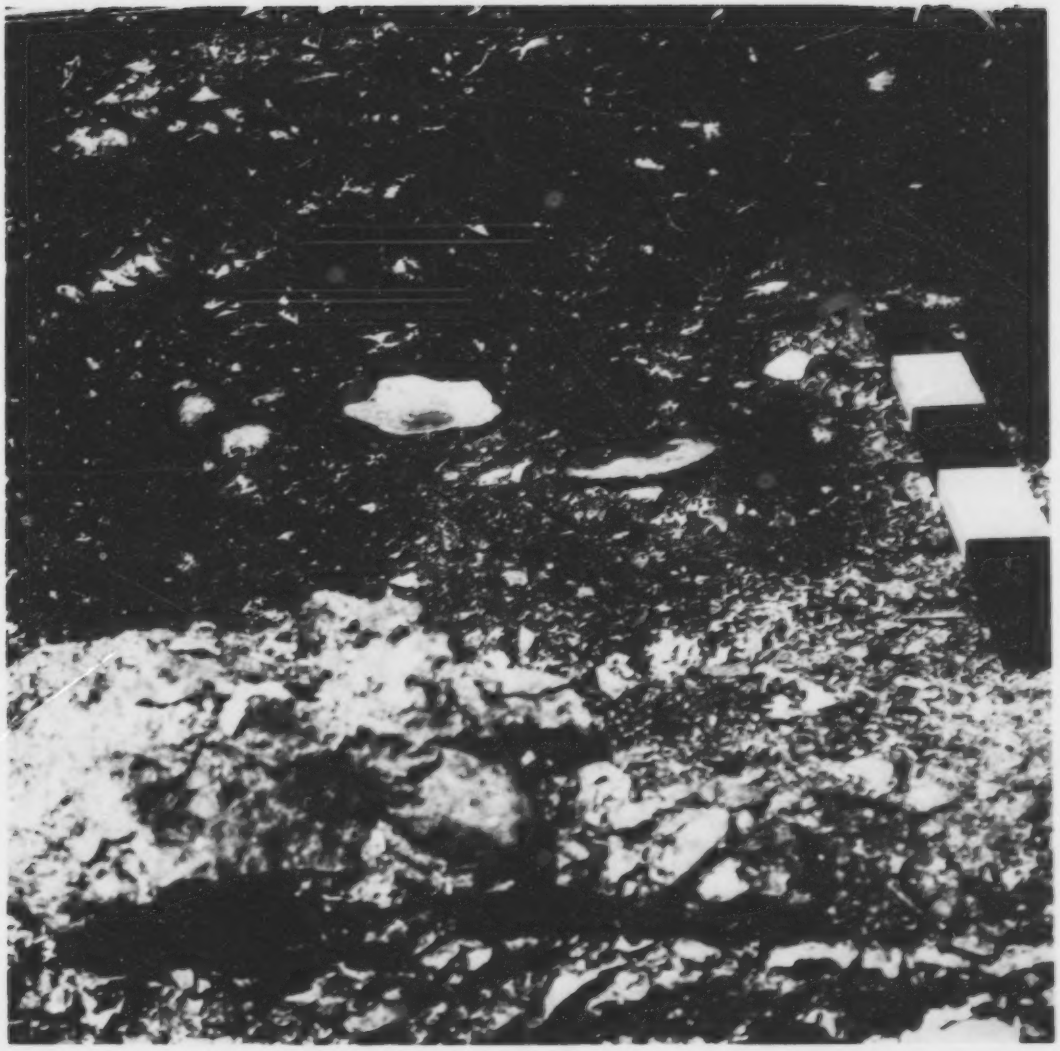
Scale  cm

PLATE 10-3 Scallop shell artifact in situ.



PART V: Concluding Statements

CHAPTER 11

Accomplishments and Work in Progress

by D.W. Black

The research conducted during Phase I of the Bliss Islands Archaeology Project has been reported in a published manuscript (Black 1985b). The information in that manuscript has been summarized in Chapter 1, and cited throughout the present volume. In addition, various aspects of the Phase I research were reported in two conference papers (Black 1984a; Black and Hale 1986) and a seminar paper (Black 1984b). The Bliss Islands research also figured prominently in a publication summarizing recent archaeological research in the insular Quoddy region as a whole (Black and Turnbull 1986).

A series of manuscript publications are planned to report the results of the Phase II research. The present volume is the first of this series of manuscripts; site reports on the Camp, Weir and Northeast Point sites are also planned.

Two brief summaries of the Phase II field work have already been published (Black 1987; Turnbull 1987). The former could serve as an abstract of this volume. In addition, one 'spin off' paper, which is indirectly related to the Bliss Islands research, especially Chapter 2 of this volume, has been published (Black and Whitehead 1987). This paper examines the evidence for preservation and storage of meat by prehistoric native people living on the Northeast coast. Additional conference and journal papers are planned.

In addition to the research results reported in this volume, the following analytical work has been accomplished:

1) a study of land snail and insect remains from the flotation samples by Drs.D.S.Davis and B. Wright (Nova Scotia Museum);
2) a study of the Camp site faunal assemblages by Kathy Gruspier Faunal Osteoarchaeology Lab, University of Toronto);
3) a study of the seasonality of some clams and mammal teeth from the Camp and Weir sites by Dr. A.E. Spiess (Maine Historic Preservation Commission)
4) an analysis of the stratification and structural composition of the Camp site by David Johnston and myself (McMaster University);
5) an analysis of the stratification of the Weir site by Becky Southern, Pam Kaufman and myself (McMaster University);
6) a study of the Weir site faunal assemblages by myself

(Faunal Osteo-archaeology Lab, University of Toronto);
7) a preliminary analysis of lithic artifacts from the Northeast Point site by Jim MacPhee (St. Mary's University);
8) a preliminary description of ceramics from the Camp site by Susan Crowe (St. Mary's University);
9) a preliminary description of lithic artifacts from the Camp site by Peter Donkin (St. Mary's University);
10) a preliminary analysis of one sampling column from the Weir site by Charlie Keeler (St. Mary's University);
11) an analysis of botanic remains from flotation samples by Colin Warman and Michael Deal (St. Mary's University);
12) a super-8 film (45 min.) of the Weir site excavation and analysis, called 'Bliss on the Rocks', has been prepared by myself (McMaster University).

The information from these studies will be incorporated into the site reports and my PhD dissertation. My dissertation will synthesize information about the prehistory and prehistoric human ecology of the Bliss Islands, and relate the information to that resulting from previous archaeological research in the Quoddy region.

TABLE 11-1 Prehistoric artifacts from the Phase II field work.

Site Name:	Site Number:	Lithic Artifacts:	Ceramic Artifacts:	Organic Artifacts:
Weir	BgDq6	523	355	35
Camp	BgDq4	2139	277	22
Northeast Point	BgDq7	147	0	1
Lighthouse Cove	BgDr60	5	2	0
Pintlowes Cove	BgDr61	3	0	1
White Water	BgDr62	0	0	0
Ledge	BgDq5	0	0	0
Other (historic and surface)		0	0	0
TOTALS:		2817	634	59

TABLE 11-2 Vertebrate faunal remains and matrix samples from the Phase II field work.

Site Name:	Site Number: Samples:	Vertebrate Faunal Remains: Mammal:	Bird:	Fish:	Matrix
Weir	BgDq6	1957	156	7075	130
Camp	BgDq4	1581	259	963	36
Northeast Point	BgDq7	0	0	0	1
Lighthouse Cove	BgDr60	3	3	4	2
Pintlowes Cove	BgDr61	3	2	0	1
White Water	BgDr62	0	0	0	1
Ledge	BgDq5	0	0	1	2
Other (historic and surface)		1	0	0	0
COLUMN TOTALS:		3545	420	8043	173
ABSOLUTE TOTAL					12008

TABLE 11-3 Historic artifacts from the Phase II field work.

Site Name:	Site Number:	Historic Artifacts:
Weir	BgDq6	0
Camp	BgDq4	146
Northeast Point	BgDq7	0
Lighthouse Cove	BgDr60	33
Pintlowes Cove	BgDr61	0
White Water	BgDr62	2
Ledge	BgDq5	2
Other (historic and surface)		
TOTAL:		232

CHAPTER 12

Summary, Conclusions, and Recommendations

by D.W. Black

Summary

The Bliss Islands archaeological sites were first formally recorded in 1981 and test excavated in 1983. Large scale excavations and further testing were conducted in 1986. The sample size by area from the 1986 (Phase II) testing is 63 m^2. In this section the amounts of archaeological materials recovered from each of the sites during the Phase II research are summarized. This summary includes both the sites reported in Chapters 6, 7, 8, and 9 of this volume, and the sites which will be reported in separate publications.

The Weir site is a large, deep, complexly stratified shell midden. It contains evidence of cultural occupations over a period of 1000 years between about 2300 years ago and about 1200 years ago. The Camp site is also a large midden, but contains mainly black soil mixed with marine shells, and is much more shallow than the Weir site. The Camp site contains prehistoric and historic occupations from about 1600 years ago until the present; earlier prehistoric occupations may also be represented at this site.

The Northeast Point site is a relatively small, probably single component, non-shell midden site dating to about 1500 years ago. The Ledge site is a small, shallow, stratified shell midden dating to the late prehistoric period. The Lighthouse Cove, Pintlowes Cove and White Water sites are all relatively small, shallow, unstratified deposits of marine shell mixed with black soil. All of these sites are being eroded by rising sea levels, and all of the prehistoric components, except those in the Weir site and the Northeast Point site, have been disturbed by historic activity.

The numbers and distribution of various types of specimens recovered are shown in a series of tables. Table 11-1 summarizes the prehistoric lithic, organic and ceramic artifacts collected. Table 11-2 summarizes the vertebrate faunal remains and column samples collected.

In total, approximately 16,000 prehistoric specimens were collected from the islands during the Phase II field work. The lithic artifacts include bifaces, projectile points, scrapers, cores, debitage and ground stone items. The ceramics

include grit-tempered vessels with linear and rocker dentate, and pseudo-scallop shell motifs, and a few sherds of shell-tempered ceramics. Organic artifacts include harpoons, projectile points, awls, needles, modified beaver incisors, and modified scallop shells. Prehistoric faunal remains include a wide variety of terrestrial and marine mammals, birds, fish and shellfish.

In addition, 232 historic specimens were recovered during Phase II (Table 11-3). The historic artifacts include metal tools, ceramics, glass, and building materials. Some historic faunal remains, including shellfish and portions of domestic animals, have been identified.

Including all of the field work conducted on the Bliss Islands to date, more than 20,000 archaeological specimens have been recovered.

Conclusions

It appears that S.F. Baird (1883:295) greatly underestimated the potential of the Bliss Islands shell middens as an archaeological resource, when he concluded that they contained few artifacts and bones. Even my own testing of the sites in 1983 did not prepare me for the amount and diversity of prehistoric material that we recovered in 1986. A brief summary of interpretations based on this material follows.

The Lighthouse Cove and Pintlowes Cove sites have been shown to definitely contain prehistoric occupations, probably dating relatively late in prehistory. My very limited examination of these sites in 1983 had led me to suggest that they might be completely historic.

The Ledge site is unusual in that, while certainly a late prehistoric shell midden, it contains no artifacts and virtually no vertebrate faunal remains. The White Water site, on the other hand, apparently is not a prehistoric site.

Test excavations at the Northeast Point site have shown it to be a significant prehistoric occupation rather than merely a 'find spot'. The artifact assemblage suggests that it dates to the Late Woodland period. The radiocarbon date for this site is earlier than expected, but is not in serious conflict with interpretations based on the artifacts.

I previously suggested that the Camp site was occupied only during the late prehistoric period and the Weir site during the Middle Woodland period. It now appears that both of these major prehistoric sites were occupied for considerable, and probably overlapping, spans of time. Were they occupied simultaneously or alternately? Were they occupied in the same or different seasons? Were they functionally differentiated? The interpretation of the relationships between these two large sites, located only 350 m apart and easily accessible one from the other, presents an important and exciting challenge for further analyses of the Bliss Islands material.

The Bliss Islands have been occupied by humans at least sporadically from about 2300 years ago until the present. Finds such as the slate ulu reported in Chapter 5 suggest that the Quoddy region, and perhaps the Bliss Islands, have been occupied for a much longer period, probably for more than 6000 years. Unfortunately, much of the evidence for these earlier occupations has been destroyed by rising sea levels.

To these conclusions some methodological observations can be added. The Phase II research indicates that there is not a significant 'background' of prehistoric cultural material scattered over the islands as a result of overall long term use of the islands during the prehistoric period. Instead, the 'archaeologically visible' cultural materials are restricted to the known sites. This conclusion is based on three indications:

i) artifact finds reported by local people are from the erosional faces of known sites;

ii) surveying and shovel-testing did not result in the finding of additional prehistoric sites;

iii) three seasons of casual and purposive observation of shore lines and inland areas by professional archaeologists and others have not resulted in the discovery even a single true 'find spot' (that is, one or a few prehistoric artifacts not associated with other cultural materials). The same indications suggest a similar pattern for historic artifacts on the islands; these may also be restricted mainly to a few known areas of intensive historic occupation.

Predictions about large archaeological sites based on small test excavations may be misleading or even completely wrong. My revised interpretations of the Camp and Weir sites reflect this methodological problem. Similarly, single radiocarbon dates may be unrepresentative of large and complex sites. However, limited testing of sites, even ones that appear to contain minimal amounts of cultural material, is not necessarily an unwarranted strategy. For example, a single test unit quickly revealed the importance of the Northeast Point site.

Recommendations

1) Erosion at the Weir site should be carefully monitored. If the site cannot be excavated more completely in the near future, or protected from erosion, then the shore lines around it should be periodically checked for eroding artifacts.

The Weir site may be unique in the Quoddy region in terms of preservation of prehistoric artifacts, stratification, and the temporal range of occupations represented. Further prehistoric archaeological research on the Bliss Islands should centre on this site.

2) Many of the questions raised by the prehistoric archaeological research on the Bliss Islands can only be answered through natural history and paleo-

environmental research. This type of interdisciplinary research should be undertaken in co-operation with professionals from the natural sciences, such as biology, geography, and Quaternary studies. I recommend that Phase III of the Bliss Islands Archaeology Project, if and when it is organized, should have this sort of interdisciplinary research as one of its main objectives.

The research could include collecting, analyzing, and dating sediment cores from salt marshes, fresh water marshes, intertidal peat deposits, and subtidal soft substrate deposits. The types of information which could be generated would include

(i) reconstructions of trends in sea level rise,
(ii) paleo-environmental reconstructions, and
(iii) changes in vegetation pattern on the islands.

3) Attempts should be made to link the prehistory of the Bliss Islands to the history of the islands through historic archaeology and historical research. The prehistoric/protohistoric/historic interface (the time period from about 1100 AD to 1780 AD) is a problematic one in Quoddy region archaeology as a whole. As background for historic archaeology, an exhaustive literature search of Quoddy region historic and ethnohistoric documents should be undertaken.

4) One useful theoretical and methodological framework within which prehistory (the cultural history of native peoples in the Quoddy region) and history (the history of Euro-Canadians in the Quoddy region) can be related to one another is provided by ecological anthropology. Both the native people and the Euro-Canadians in the region adapted to a roughly similar set of ecological conditions, and both groups developed economies strongly oriented toward the sea and the exploitation of marine resources. I feel that it is impossible to understand the importance of fishing as an economic pursuit, in human terms, in an area such as southern New Brunswick, without understanding the importance of fishing from the perspectives of history, prehistory and human ecology.

Much of the prehistoric research already conducted in the Quoddy region has been done within ecological frameworks (for example, Black 1983; Sanger 1985a). I recommend that an ecological orientation be adopted in attempts to pursue the type of research suggested in item 3 above.

APPENDIX: Keys to Figures

KEY 1 to Figures 3-2 and 3-4.

KEY TO LARGE SITE MAPS

High water line

Low water line

Intertidal outcrops

Tree line

Trails

Contour lines — 8

Shell midden

1983 Test units

1986 Excavation Block

Elevations in metres above marine chart datum

KEY 2 to Figures 3-3 and 3-5.

KEY TO EXCAVATION PLANS

Eroded edge of site – – – – – – – (top of slope)
– – – – – – – (bottom of slope)

Grid stake

Column sample

Excavated by natural & arbitrary levels (1983)

Excavated by natural layers (1986)

Shovelled and screened (1986)

Elevations in metres above marine chart datum

KEY 3 to Figures 3-9, 6-1, 7-1, 8-1 and 9-1.

KEY TO SITE MAPS

Cliff line

Highwater line

Lowwater line

Tree line

Trails

Buildings

Peat deposit

Site

Shovel tests

Test units

182- Bliss Islands

KEY 4 to Figures 6-3, 6-5, 7-3, 7-4 and 8-3.

KEY TO MATRIX ANALYSIS DIAGRAMS

sample volume: in litres

sample weight: in grams

sample pH: soil acidity measured on a 14 point scale; 7.0 is neutral; 7.0-1.0 increasing acidity; 7.0-14.0 increasing alkalinity

Structural Components:

- shell: all marine and terrestrial mollusk and shellfish remains
- gravel: all mineral particles larger than 3.0 mm in diameter
- fine particles: all non-cultural organic materials and all soil and mineral particles less than 3.0 mm in diameter
- other: all artifacts, debitage, ceramics, bones, charcoal and any other materials of probable cultural origin

Shellfish Species:

- M.a.-- Mya arenaria-- soft-shelled clam
- M.m.-- Modiolus modiolus-- horse mussel
- M.e.-- Mytilus edulis-- common mussel
- B.u.-- Buccinum undatum--northern whelk
- N.l.-- Nucella lapillus--dogwhelk
- S.d.-- Strongylocentrotus droebachiensis-- green sea urchin
- other-- all marine and terrestrial mollusks and shellfish accounting for less than 1% of the total amount

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